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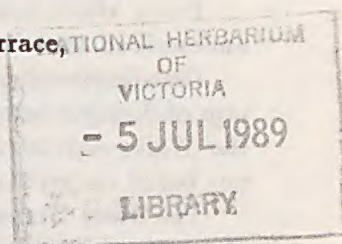
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A LIST OF THE VASCULAR PLANTS OF SOUTH AUSTRALIA (EDITION III)

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Abstract

The native and naturalised plant taxa occurring in South Australia are recorded together with their distribution within the State and an extensive synonymy. Previously incorrectly recorded taxa are included.

Introduction

This list of the Vascular Plants of South Australia has been prepared from the Flora of Australia database prepared and maintained by the Information Systems Branch of the Department of Environment and Planning from data supplied mainly by the State Herbarium of South Australia. This computerised database contains the following items:

Family, Genus, Species, Author, Subspecies or Variety, Subspecies or Variety Author, Synonym, Synonym Author, Common Names, Notation for Naturalised Species, Regional Distribution, Conservation Status.

Enquiries concerning technical aspects of the database or alternative means of access should be directed to Dr Tom Stubbs of the Department of Environment and Planning.

The listing has been sorted by family, with the families following a basically Englerian sequence used at the Herbarium. Within each family names are arranged alphabetically with the accepted name in bold, and the synonym in italics.

Where an epithet is strictly a synonym for a species but that species is represented by one or more infraspecific taxa, it is shown as a synonym for one of these infraspecific taxa. This is not always strictly correct but this approach has been adopted for simplicity.

In the process of preparing the previous editions of this census and the *Flora of South Australia* considerable checking has been done. It was not, however, possible to check every record in this edition. It should also be borne in mind that new records are being reported every week and that the list will rapidly become out of date. There were 3995 accepted names in the 1984 edition.

This has grown to 4354 in the present edition, reflecting the rapid increase in knowledge of our flora. It is likely that numerous changes will continue to be made for the foreseeable future. The last alterations incorporated were on 27 April, 1989.

Every effort has been made to exclude unpublished names although some undescribed taxa have been included without formal epithets.

Distributional data is primarily based on the collections at the State Herbarium of South Australia which, since the last edition, includes the herbarium of the Waite Agricultural Research Institute. It is policy to exclude any records not based on herbarium specimens in publicly owned herbaria.

The State Herbarium does not recognise an officially accepted name in cases of controversy. Not all members of the staff necessarily agree with all the names or records in the census and no-one is obliged to use these names or spellings.

Family names and concepts generally follow Airy Shaw (1973), although botanists responsible for particular groups have in a few cases made slight modifications.

Author abbreviations follow Meikle (1980).

An asterisk (*) indicates naturalised taxa.

A query (?) against the distribution indicates uncertainty of identification, uncertainty of the location or, with naturalised taxa, may indicate uncertainty as to whether or not it is truly naturalised.

Contributors

This compilation is the result of contributions by many people, including collectors, staff and volunteers who have helped with sorting the State Herbarium's collections.

Mr M. Brownlow and Dr T. Stubbs of the Information Systems Branch of the Department of Environment and Planning were principally responsible for the maintenance and updating of the computer file. Mrs L. Chan assisted with data entry. Mr R. Engler was responsible for the typesetting. This document was formatted with the \TeX ¹ typesetting software. The Branch assisted in funding this census.

The following are responsible for particular families:

- | | |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| W. R. Barker: | Salicaceae-Proteaceae, Amaranthaceae, Cactaceae,
Nymphaeaceae, Oxalidaceae-Euphorbiaceae,
Anacardiaceae-Sterculiaceae,
Scrophulariaceae-Lentibulariaceae. |
| R. Bates: | Dilleniaceae, Orchidaceae (partly). |
| G. H. Bell: | Rutaceae, Iridaceae. |
| R. J. Chinnock: | Lycopodiaceae-Casuarinaceae,
Phytolaccaceae-Nyctaginaceae, Portulacaceae, |

¹ \TeX is a trademark of the American Mathematical Society.

- Basellaceae, Chenopodiaceae, Myoporaceae.
Hj. Eichler: Ranunculaceae (partly).
D. Hopton: Violaceae-Tamaricaceae, Elatinaceae-Lythraceae,
Myrtaceae (except *Eucalyptus*), Epacridaceae,
Callitrichaceae, Labiatae.
J. P. Jessop: *Eucalyptus*, Gramineae.
A. A. Munir: Olacaceae-Viscaceae, Baueraceae, Pittosporaceae,
Verbenaceae-Chloanthaceae, Caprifoliaceae-Dipsacaceae,
Stylidaceae, Compositae.
K. O'Grady: Thymelaeaceae.
M. O'Leary: *Acacia*.
E. L. Robertson: Hydrocharitaceae, Potamogetonaceae-Zannichelliaceae.
D. E. Symon: Rosaceae, Solanaceae, Goodeniaceae.
H. R. Toelken: Aizoaceae, Droseraceae-Crassulaceae,
Onagraceae-Ericaceae, Primulaceae-Ehretiaceae,
Plantaginaceae, Campanulaceae.
H. P. Vonow: Polygonaceae, Caryophyllaceae, Meliaceae-Polygalaceae,
Alismataceae, Aponogetonaceae, Juncaginaceae,
Najadaceae-Pontederiaceae.
J. Z. Weber: Lauraceae, Ranunculaceae (partly), Ceratophyllaceae,
Guttiferae, Leguminosae (except *Acacia*),
Frankeniaceae, Juncaceae-Hydatellaceae,
Palmae-Cyperaceae, Orchidaceae (partly).

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the Herbarium, Royal Botanic Gardens, Kew." (Her Majesty's Stationery
Office, Basildon).

72.001 LYCOPODIACEAE

- Lycopodium densum* sensu Labill. = *Lycopodium deuterodensum*
Lycopodium deuterodensum Herter - SL
Lycopodium drummondii Spring = *Lycopodium serpentinum*
Lycopodium gracillimum Kunze = SELAGINELLACEAE
Lycopodium kraussianum Kunze = SELAGINELLACEAE
Lycopodium laterale R.Br. - SL KI
Lycopodium serpentinum Kunze - SL
Phylloglossum drummondii Kunze - SL KI SE

72.002 ISOETACEAE

- Isoetes drummondii* A.Braun - SL KI SE
Isoetes humilior sensu J.H.Willis (1962) = *Isoetes muelleri*
Isoetes muelleri A.Braun - NW LE FR EP SE

72.003 SELAGINELLACEAE

- Lycopodium gracillimum* Kunze = *Selaginella gracillima*
Lycopodium kraussianum Kunze = *Selaginella kraussiana*
Selaginella gracillima (Kunze) Alston - SL SE
 **Selaginella kraussiana* (Kunze) A.Braun - SL
Selaginella preissiana Spring = *Selaginella gracillima*

74.005 OPHIOGLOSSACEAE

- Botrychium australe* R.Br. - SL
Ophioglossum coriaceum Cunn. = *Ophioglossum lusitanicum*
Ophioglossum lusitanicum L. - NW LE GT FR EA EP NL MU YP SL KI SE
Ophioglossum lusitanicum L. ssp. *coriaceum* (Cunn.) R.T.Clausen =
Ophioglossum lusitanicum
Ophioglossum polyphyllum A.Braun - NW NU FR EA

74.006 OSMUNDACEAE

- Acrostichum barbarum* L. = *Todea barbara*
Osmunda barbara Thunb. = *Todea barbara*
Todea africana Willd. = *Todea barbara*
Todea barbara (L.) T.Moore - SL ?KI

74.008 GLEICHENIACEAE

- Gleichenia circinata* sensu J.Black (1943) = *Gleichenia microphylla*
Gleichenia microphylla R.Br. - SL KI SE

74.009 SCHIZAEACEAE

- Schizaea asperula* Wakef. = *Schizaea bifida*
Schizaea bifida Willd. - SL SE
Schizaea fistulosa Labill. - SL SE

74.014 DICKSONIACEAE

- Dicksonia antarctica* Labill. - ?SL ?SE

74.015 DENNSTAEDTIACEAE

- Cheilanthes dicksonioides* Endl. = *Hypolepis dicksonioides*
Dennstaedtia davallioides (R.Br.) T.Moore - SE
Dicksonia davallioides R.Br. = *Dennstaedtia davallioides*
Histiopteris incisa (Thunb.) J.Smith - FR SL KI SE
 **Hypolepis dicksonioides* (Endl.) Hook. - SL
Hypolepis punctata (Thunb.) Mett. ex Kuhn - not in S.Aust
Hypolepis punctata sensu Chinn. (1978) = *Hypolepis dicksonioides*
Hypolepis rugosula (Labill.) J.Smith - SL KI SE
Polypodium rugosulum Labill. = *Hypolepis rugosula*
Pteridium aquilinum sensu J.Black (1943) = *Pteridium esculentum*
Pteridium esculentum (Forster f.) Cockayne - EP SL KI SE
Pteris esculenta Forster f. = *Pteridium esculentum*
Pteris incisa Thunb. = *Histiopteris incisa*

74.016 LINDSAEACEAE

- Lindsaea linearis* Sw. - SL KI SE

74.018 ADIANTACEAE

- Adiantum aethiopicum* L. - FR EP SL KI SE
Adiantum capillus-veneris L. - MU YP SE
Anogramma leptophylla (L.) Link - FR EP SL SE
Cheilanthes austrotenuifolia H.Quirk & T.C.Chambers - FR EP NL MU YP SL KI SE
Cheilanthes clevelandii F.Muell. & Tate = *Cheilanthes sieberi* ssp. *sieberi*
Cheilanthes distans (R.Br.) Mett. - FR EP NL MU SL
Cheilanthes lasiophylla Pichi-Serm. - NW LE NU GT FR EA EP NL MU
Cheilanthes sieberi Kunze ssp. *pseudovellea* H.Quirk & T.C.Chambers -
 NW LE GT FR EP
Cheilanthes sieberi Kunze ssp. *sieberi* - NW LE FR EA EP MU SE
Cheilanthes tenuifolia (Burman f.) Sw. ssp. *sieberi* (Kuntze) Domin =
Cheilanthes sieberi ssp. *sieberi*
Cheilanthes tenuifolia sensu Chinn. (1978) = *Cheilanthes austrotenuifolia*
Cheilanthes vellea sensu Chinn. (1978) = *Cheilanthes sieberi* ssp. *pseudovellea*
Grammitis reynoldsii (F.Muell.) Benth. = *Paraceterach reynoldsii*
Gymnogramma reynoldsii (F.Muell.) J.Black = *Paraceterach reynoldsii*
Gymnogramme reynoldsii (F.Muell.) J.Black = *Paraceterach reynoldsii*
Nothochlaena reynoldsii F.Muell. = *Paraceterach reynoldsii*
Notholaena brownii sensu J.Black (1943) = *Cheilanthes lasiophylla*
Notholaena distans R.Br. = *Cheilanthes distans*
Notholaena reynoldsii F.Muell. = *Paraceterach reynoldsii*
Paraceterach reynoldsii (F.Muell.) Tind. - NW FR EA
Polypodium leptophyllum L. = *Anogramma leptophylla*

74.023 PTERIDACEAE

- Pteris tremula* R.Br. - FR EP MU YP SL SE

74.027 BLECHNACEAE

- Blechnum aggregatum* sensu H.Eichler (1965) = *Blechnum chambersii*
Blechnum capense sensu J.Black (1943), partly = *Blechnum minus*
Blechnum capense sensu J.Black (1943), partly = *Blechnum wattsii*
Blechnum chambersii Tind. - SE
Blechnum discolor sensu J.Black (1943) = *Blechnum nudum*
Blechnum lanceolatum (R.Br.) J.W.Sturm = *Blechnum chambersii*
Blechnum minus (R.Br.) Ettingsh. - SL SE
Blechnum nudum (Labill.) Mett. ex Luerssen - SL KI
Blechnum procerum sensu H.Eichler (1965) = *Blechnum wattsii*
Blechnum wattsii Tind. - SL KI SE
Doodia caudata (Cav.) R.Br. - FR
Onoclea nuda Labill. = *Blechnum nudum*
Stegania lanceolata R.Br. = *Blechnum chambersii*
Stegania minor R.Br. = *Blechnum minus*
Woodwardia caudata Cav. = *Doodia caudata*

74.028 DRYOPTERIDACEAE

- Aspidium proliferum* R.Br. = *Polystichum proliferum*
Aspidium shepherdii Kunze ex Mett. = *Lastreopsis acuminata*
 **Cyrtomium falcatum* (L.f.) C.Presl - SL SE
Lastrea acuminata Houlston = *Lastreopsis acuminata*
Lastreopsis acuminata (Houlston) C.Morton - SE
Lastreopsis shepherdii (Kunze ex Mett.) Tind. = *Lastreopsis acuminata*
Polypodium falcatum L.f. = *Cyrtomium falcatum*
Polystichum aculeatum sensu J.Black (1943) = *Polystichum proliferum*
Polystichum proliferum (R.Br.) C.Presl - ?SE

74.029 ASPLENIACEAE

- Asplenium bulbiferum* Forster f. - SE
Asplenium flabellifolium Cav. - FR NL SL SE
Asplenium flavelifolium Cav. = *Asplenium flabellifolium*
Asplenium trichomanes L. - EP SE
Grammitis rutaefolia R.Br. = *Pleurosorus rutifolius*
Gymnogramma subglandulosa Hook. & Grev. = *Pleurosorus subglandulosus*
Pleurosorus rutaefolius (R.Br.) Fée = *Pleurosorus rutifolius*
Pleurosorus rutifolius (R.Br.) Fée - NW LE NU GT FR EA EP NL MU SL KI SE

74.029 ASPLENIACEAE (contd)*Pleurosorus subglandulosus* (Hook. & Grev.) Tind. - NW FR EP**74.032 THELYPTERIDACEAE***Christella dentata* (Forsskal) Brownsey & Jermy - EP MU*Cyclosorus parasiticus* sensu H. Eichler (1965) = *Christella dentata**Dryopteris parasitica* sensu J. Black (1943) = *Christella dentata**Polypodium dentatum* Forsskal = *Christella dentata***74.040 MARSILEACEAE***Marsilea angustifolia* sensu J. H. Willis (1962) = *Marsilea* sp.*Marsilea drummondii* A. Braun - LE GT FR EA EP NL MU YP SL SE*Marsilea elata* A. Braun var. *crenata* A. Braun = *Marsilea drummondii**Marsilea exarata* A. Braun - NW LE GT*Marsilea hirsuta* R. Br. - LE GT FR EA EP NL MU YP SL KI*Marsilea mutica* Mett. - ?MU*Marsilea* sp. - LE MU SE*Pilularia novae-hollandiae* A. Braun - SL SE**74.041 AZOLLACEAE***Azolla filiculoides* Lam. - LE MU SL SE*Azolla filiculoides* Lam. var. *rubra* (R. Br.) Strasburger = *Azolla filiculoides**Azolla pinnata* R. Br. - MU SE*Azolla rubra* R. Br. = *Azolla filiculoides***84.002 PINACEAE****Pinus halepensis* Miller - EP YP SL**Pinus nigra* A. F. Arnold - ?SL**Pinus pinaster* Aiton - ?SL**Pinus ponderosa* Douglas - ?SL**Pinus radiata* D. Don - NL SL SE*Pinus sylvestris* L. var. *maritima* Aiton = *Pinus nigra***84.004 CUPRESSACEAE***Callitris canescens* (Parl.) S. T. Blake - EP MU YP KI*Callitris columellaris* F. Muell. - NW NU GT FR EA EP MU*Callitris cupressiformis* Vent. ex Loudon = *Callitris rhomboidea**Callitris cupressiformis* Vent. ex Loudon var. *tasmanica* Benth. = *Callitris rhomboidea**Callitris drummondii* sensu J. Black (1943) = *Callitris canescens**Callitris glauca* R. Br. ex R. Baker & H. G. Smith = *Callitris columellaris**Callitris hugelii* (Carrière) Franco = *Callitris columellaris**Callitris hugelii* sensu J. Garden (1956) = *Callitris columellaris**Callitris intratropica* R. Baker & H. G. Smith = *Callitris columellaris**Callitris morrisonii* R. Baker = *Callitris canescens**Callitris preissii* Miq. - LE GT FR EA EP NL MU YP SL KI SE*Callitris preissii* Miq. ssp. *murrayensis* J. Garden = *Callitris preissii**Callitris preissii* Miq. ssp. *verrucosa* (Cunn. ex Endl.) J. Garden = *Callitris verrucosa**Callitris propinqua* R. Br. ex R. Baker & H. G. Smith = *Callitris preissii**Callitris rhomboidea* R. Br. ex Rich. - SL KI SE*Callitris robusta* R. Br. ex R. Baker & H. G. Smith = *Callitris preissii**Callitris tasmanica* (Benth.) R. Baker & H. G. Smith = *Callitris rhomboidea**Callitris verrucosa* (Cunn. ex Endl.) F. Muell. - NW NU EP NL MU YP SE*Frenela canescens* Parl. = *Callitris canescens**Frenela hugelii* Carrière = *Callitris preissii**Frenela rhomboidea* (R. Br. ex Rich.) Endl. = *Callitris rhomboidea**Frenela robusta* Cunn. ex Mirb. var. *microcarpa* Benth. = *Callitris columellaris**Frenela robusta* Cunn. ex Mirb. var. *verrucosa* (Cunn. ex Endl.) Benth. =*Callitris verrucosa**Frenela verrucosa* Cunn. ex Endl. = *Callitris verrucosa***91.001 CASUARINACEAE***Allocasuarina decaisneana* (F. Muell.) L. Johnson - NW*Allocasuarina distyla* (Vent.) L. Johnson - not in S. Aust.*Allocasuarina helmii* (Ewart & M. Gordon) L. Johnson - NW GT EP*Allocasuarina luehmannii* (R. Baker) L. Johnson - MU SE

91.001 CASUARINACEAE (contd)

- Allocasuarina muelleriana* (Miq.)L.Johnson - FR EA EP NL MU YP SL KI SE
Allocasuarina paludosa (Sieber ex Sprengel)L.Johnson - MU SL KI SE
Allocasuarina paradoxa (Macklin)L.Johnson - SL SE
Allocasuarina pusilla (Macklin)L.Johnson - NL MU YP SL SE
Allocasuarina robusta (Macklin)L.Johnson - SL
Allocasuarina striata (Macklin)L.Johnson - SL KI
Allocasuarina verticillata (Lam.)L.Johnson - FR EP NL MU YP SL KI SE
Casuarina bicuspidata Benth. - not in S.Aust.
Casuarina cambagei R.Baker = *Casuarina cristata* ssp. *cristata*
Casuarina cristata Miq. ssp. *cristata* - not in S.Aust.
Casuarina cristata Miq. ssp. *pauper* (F.Muell. ex Miq.)L.Johnson -
 NW LE NU GT FR EA EP NL MU
Casuarina decaisneana F.Muell. = *Allocasuarina decaisneana*
Casuarina distyla Vent. = *Allocasuarina distyla*
Casuarina glauca Sieber ex Sprengel - not in S.Aust.
Casuarina helmsii Ewart & M.Gordon = *Allocasuarina helmsii*
Casuarina humilis sensu J.Black (1948) = *Allocasuarina helmsii*
Casuarina lepidophloia F.Muell. = *Casuarina cristata* ssp. *pauper*
Casuarina luehmannii R.Baker = *Allocasuarina luehmannii*
Casuarina muelleriana Miq. = *Allocasuarina muelleriana*
Casuarina obesa Miq. - GT
Casuarina paludosa Sieber ex Sprengel = *Allocasuarina paludosa*
Casuarina paludosa Sieber ex Sprengel var. *robusta* Macklin = *Allocasuarina robusta*
Casuarina paradoxa Macklin = *Allocasuarina paradoxa*
Casuarina pauper F.Muell. ex Miq. = *Casuarina cristata* ssp. *pauper*
Casuarina pusilla Macklin = *Allocasuarina pusilla*
Casuarina quadrivalvis Labill. = *Allocasuarina verticillata*
Casuarina striata Macklin = *Allocasuarina striata*
Casuarina stricta Aiton = *Allocasuarina verticillata*
Casuarina verticillata Lam. = *Allocasuarina verticillata*

91.007 SALICACEAE

- **Populus alba* L. - SL
 **Populus nigra* L. - SL
 **Salix alba* L. - occurrence uncertain
 **Salix babylonica* L. - ?FR MU SL
 **Salix cinerea* L. - ?SE
 **Salix ×rubens* Schrank - MU SL

91.011 FAGACEAE

- **Quercus robur* L. - SL

91.013 ULMACEAE

- **Ulmus ×hollandica* Miller - SL
 **Ulmus procera* Salisb. - SL

91.016 MORACEAE

- **Ficus carica* L. - ?NL SL
Ficus platypoda (Miq.)Cunn. ex Miq. - NW
Urostigma platypodum Miq. = *Ficus platypoda*

91.017 CANNABACEAE

- **Cannabis sativa* L. - ?MU ?SL

91.018 URTICACEAE

- Freirea australis* Nees = *Parietaria debilis*
Helxine soleiroliae Req. = *Soleirolia soleiroliae*
Parietaria debilis Forster f. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Parietaria debilis Forster f. var. *australis* (Nees)J.Black = *Parietaria debilis*
Parietaria diffusa Mert. & Koch = *Parietaria judaica*
 **Parietaria judaica* L. - MU SL
Parietaria soleiroliae (Req.)Sprengel = *Soleirolia soleiroliae*
 **Soleirolia soleiroliae* (Req.)Dandy - SL SE
Urtica incisa Poir. - MU KI SE

91.018 URTICACEAE (contd)**Urtica urens* L. - LE NU FR EA EP NL MU YP SL KI SE**91.019 PROTEACEAE***Adenanthos barbata* F.Muell. ex Benth. = *Adenanthos macropodiana**Adenanthos macropodiana* E.C.Nelson - KI*Adenanthos sericea* Labill. var. ?*brevifolia* Benth. = *Adenanthos macropodiana**Adenanthos sericea* sensu Tate (1890) = *Adenanthos macropodiana**Adenanthos terminalis* R.Br. - EP MU SL KI SE*Adenanthos terminalis* R.Br. β *plumosa* Meissner = *Adenanthos terminalis**Anadenia ilicifolia* R.Br. = *Grevillea ilicifolia* var. *ilicifolia**Banksia marginata* Cav. - EP NL MU SL KI SE*Banksia ornata* F.Muell. ex Meissner - EP ?MU SL KI SE*Banksia ornata* F.Muell. ex Meissner var. *rufa* Ashby = *Banksia ornata**Banksia patula* R.Br. = *Banksia marginata**Conospermum cucullatum* Gand. = *Conospermum patens**Conospermum helichrysoides* Gand. = *Conospermum patens**Conospermum mitchellii* Meissner - not in S.Aust.*Conospermum patens* Schldl. - EP NL MU SL KI SE*Dryandra formosa* R.Br. - SE*Grevillea albiflora* C.T.White - NW*Grevillea aquifolium* Lindley - SE*Grevillea aspera* R.Br. - FR EP*Grevillea bitermata* Meissner - EP*Grevillea eriostachya* Lindley - NW*Grevillea eyreana* S.Moore = *Hakea eyreana**Grevillea halmaturina* Tate = *Grevillea parviflora**Grevillea huegelii* Meissner - NW LE NU GT FR EP NL MU YP SL*Grevillea ilicifolia* (R.Br.)R.Br. β *dilatata* R.Br. = *Grevillea ilicifolia* var. *ilicifolia**Grevillea ilicifolia* (R.Br.)R.Br. α *attenuata* R.Br. = *Grevillea ilicifolia* var. *ilicifolia**Grevillea ilicifolia* (R.Br.)R.Br. var. *angustiloba* F.Muell. - SE*Grevillea ilicifolia* (R.Br.)R.Br. var. *ilicifolia* - FR EP NL MU YP SL KI SE*Grevillea ilicifolia* (R.Br.)R.Br. var. *lobata* (F.Muell.)Benth. - MU SE*Grevillea juncifolia* Hook. - NW LE NU GT EP*Grevillea lavandulacea* Schldl. var. *lavandulacea* - NL MU SL SE*Grevillea lavandulacea* Schldl. var. *sericea* Benth. - FR NL MU SL SE*Grevillea lavandulacea* sensu W.R.Barker (1983), partly = *Grevillea rogersii**Grevillea lavandulacea* sensu W.R.Barker (1983), partly = *Grevillea muricata**Grevillea lineata* R.Br. = *Grevillea striata**Grevillea livea* Ewart & Archer = *Grevillea stenobotrya**Grevillea lobata* F.Muell. = *Grevillea ilicifolia* var. *lobata**Grevillea muricata* J.Black - KI*Grevillea nematophylla* F.Muell. - NW LE NU GT FR EA EP*Grevillea parallelinervis* Carrick - EP*Grevillea parviflora* R.Br. - EP KI SE*Grevillea parviflora* R.Br. var. *acuarica* F.Muell. ex Benth. = *Grevillea parviflora**Grevillea pauciflora* R.Br. ssp. *pauciflora* - EP YP KI*Grevillea pterosperma* F.Muell. - NW NU GT EP MU SE*Grevillea purdieana* Diels = *Grevillea nematophylla**Grevillea quinquenervis* J.Black - KI*Grevillea rogersii* Maiden - KI*Grevillea rogersii* sensu J.Black (1948), partly = *Grevillea muricata***Grevillea rosmarinifolia* Cunn. - SL*Grevillea sarissa* S.Moore ssp. *umbellifera* (J.Black)McGillivray - GT EP*Grevillea simulans* Morrison = *Grevillea stenobotrya**Grevillea stenobotrya* F.Muell. - NW LE NU*Grevillea striata* R.Br. - NW LE FR*Grevillea sturtii* R.Br. = *Grevillea juncifolia**Grevillea treueriana* F.Muell. - GT*Grevillea umbellifera* J.Black = *Grevillea sarissa* ssp. *umbellifera**Hakea aenigma* W.R.Barker & Haegi - KI*Hakea baxteri* R.Br. - ?NU*Hakea carinata* ?sensu F.Muell. ex Meissner (1854), partly = *Hakea repullulans**Hakea carinata* F.Muell. ex Meissner - FR NL MU SL ?KI SE*Hakea carinata* F.Muell. ex Meissner forma *planifolia* Meissner = *Hakea carinata*

91.019 PROTEACEAE (contd)

- Hakea carinata* F.Muell. ex Meissner forma *trigonophylla* Meissner = *Hakea carinata*
Hakea cf. francisiana sensu Maconochie (1973) = *Hakea aenigma*
Hakea cycloptera R.Br. - EP
Hakea divaricata L.Johnson - NW
Hakea divaricata sensu Boomsma (1981), partly = *Hakea eyreana*
Hakea ednieana Tate - LE FR EA
Hakea eyreana (S.Moore) D.McGillivray - LE
Hakea eyreana sensu Boomsma (1981) = *Hakea divaricata*
Hakea flexibilis F.Muell. ex Meissner = *Hakea muelleriana*
Hakea flexilis F.Muell. = *Hakea muelleriana*
Hakea flexilis R.Br. = *Hakea nodosa*
Hakea florigera Gand. = *Hakea leucoptera*
Hakea francisiana F.Muell. - NW NU GT EP
Hakea intermedia Ewart & O.B.Davies = *Hakea divaricata*
Hakea intermedia sensu J.Black (1924), partly = *Hakea eyreana*
Hakea ivoryi Bailey var. *glabrescens* J.Black = *Hakea divaricata*
Hakea ivoryi sensu Boomsma (1981), partly = *Hakea eyreana*
Hakea ivoryi sensu J.Black (1948) = *Hakea divaricata*
Hakea kippistiana sensu J.Black (1948) = *Hakea leucoptera*
**Hakea laurina* R.Br. - SL KI
Hakea leucoptera R.Br. - NW LE NU GT FR EA EP NL MU YP
Hakea leucoptera R.Br. var. *kippistiana* sensu J.Black (1948) = *Hakea leucoptera*
Hakea lorea sensu J.Black (1948) = *Hakea suberea*
Hakea minyma Maconochie - NW
Hakea muelleriana J.Black - EP MU YP SL KI SE
Hakea multilincata Meissner var. *grammatophylla* sensu J.Black (1948) = *Hakea francisiana*
Hakea multilincata sensu J.Black (1948) = *Hakea francisiana*
Hakea nodosa R.Br. - SE
Hakea pampliniana Meissner ex Kipp. = *Hakea rostrata*
Hakea repullulans H.M.Lee - SE
Hakea rostrata F.Muell. ex Meissner - MU SL KI SE
Hakea rugosa R.Br. - FR EP NL MU YP SL KI SE
**Hakea sericea* Schrader - SL
Hakea sp. - KI
**Hakea suaveolens* R.Br. - SE
Hakea suberea S.Moore - NW LE
Hakea tephrosperma R.Br. - MU
Hakea ulicina R.Br. var. *carinata* (F.Muell. ex Meissner) Benth., partly = *Hakea carinata*
Hakea ulicina R.Br. var. *carinata* (F.Muell. ex Meissner) Benth., partly = *Hakea repullulans*
Hakea ulicina R.Br. var. *flexilis* F.Muell. ex J.Black = *Hakea muelleriana*
Hakea ulicina R.Br. var. *latifolia* J.Black, partly = *Hakea carinata*
Hakea ulicina R.Br. var. *latifolia* J.Black, partly = *Hakea repullulans*
Hakea ulicina sensu J.Black (1948), partly = *Hakea carinata*
Hakea ulicina sensu J.Black (1948), partly = *Hakea repullulans*
Hakea vittata R.Br. - EP SL KI SE
Hakea vittata R.Br. var. *glabriflora* J.Black = *Hakea sericea*
Hakea vittata R.Br. var. *glabriflora* J.Black ex J.H.Willis = *Hakea sericea*
Hakea vittata sensu J.H.Willis (1973) = *Hakea tephrosperma*
Isopogon ceratophyllus R.Br. - MU SL KI SE
Persoonia juniperina Labill. - SL SE
Petrophila multisecta F.Muell. = *Petrophile multisecta*
Petrophile multisecta F.Muell. - KI
Sirmuellera ornata (F.Muell. ex Meissner) Kuntze = *Banksia ornata*

91.020 OLACACEAE

- Olax benthamiana* sensu J.Black (1948) = *Olax obcordata*
Olax obcordata A.S.George - EP KI

91.026 SANTALACEAE

- Anthobolus exocarpoides* F.Muell. = *Anthobolus leptomerioides*
Anthobolus leptomerioides F.Muell. - NW
Choretrum chrysanthum F.Muell. - FR EP NL MU YP SL KI SE.
Choretrum glomeratum R.Br. - FR EP MU YP SL KI SE

91.026 SANTALACEAE (contd)*Choretrum glomeratum* R.Br. var. *chrysanthum* (F.Muell.)Benth. =*Choretrum chrysanthum**Choretrum glomeratum* sensu J.Black (1948), partly = *Choretrum chrysanthum**Choretrum preissianum* Miq. = *Leptomeria preissiana**Choretrum spicatum* F.Muell. - KI SE*Eucarya acuminata* (R.Br.)Sprague & Summerh. = *Santalum acuminatum**Eucarya murrayana* T.L.Mitchell = *Santalum murrayanum**Eucarya spicata* (R.Br.)Sprague & Summerh. = *Santalum spicatum**Exocarpos aphyllus* R.Br. - LE NU GT FR EA EP NL MU YP SL KI*Exocarpos cupressiformis* Labill. - FR EP NL YP SL KI SE*Exocarpos dasystachys* Schldl. = *Exocarpos cupressiformis**Exocarpos glandulaceus* Miq. = *Exocarpos sparteus**Exocarpos leptomerioides* F.Muell. ex Miq. = *Exocarpos aphyllus**Exocarpos sparteus* R.Br. - NW FR EP NL MU YP SL SE*Exocarpos strictus* R.Br. - MU SE*Exocarpos strictus* R.Br. var. *syrticola* F.Muell. ex Miq. = *Exocarpos syrticola**Exocarpos syrticola* (F.Muell. ex Miq.)Stauffer - NU EP YP SE*Fusanus acuminatus* R.Br. = *Santalum acuminatum**Fusanus acuminatus* R.Br. var. *angustifolius* (A.DC.)Benth. = *Santalum lanceolatum**Fusanus persicarius* (F.Muell.)F.Muell. ex Benth. = *Santalum murrayanum**Fusanus spicatus* R.Br. = *Santalum spicatum**Leptomeria aphylla* R.Br. - EP NL MU SL KI SE*Leptomeria preissiana* (Miq.)A.DC. - EP*Leptomeria pungens* F.Muell. = *Leptomeria aphylla**Mida acuminata* (R.Br.)Kuntze = *Santalum acuminatum**Mida persicaria* (F.Muell.)Kuntze = *Santalum murrayanum**Mida spicata* (R.Br.)Kuntze = *Santalum spicatum**Omphacomeria psilotoides* A.DC. = *Exocarpos strictus**Santalum acuminatum* (R.Br.)A.DC. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Santalum angustifolium* A.DC. = *Santalum lanceolatum**Santalum cygnorum* Miq. = *Santalum spicatum**Santalum lanceolatum* R.Br. - NW LE NU GT FR EA NL*Santalum lanceolatum* R.Br. var. *angustifolium* (A.DC.)Benth. = *Santalum lanceolatum**Santalum murrayanum* (T.L.Mitchell)C.Gardner - FR EA EP MU YP SL SE*Santalum persicarium* F.Muell. = *Santalum murrayanum**Santalum spicatum* (R.Br.)A.DC. - NW NU GT FR EA EP*Xylophyllus aphyllus* (R.Br.)Kuntze = *Exocarpos aphyllus**Xylophyllus cupressiformis* (Labill.)Kuntze = *Exocarpos cupressiformis**Xylophyllus sparteus* (R.Br.)Kuntze = *Exocarpos sparteus**Xylophyllus strictus* (R.Br.)Kuntze = *Exocarpos strictus***91.028 LORANTHACEAE***Amyema aurantiacum* (Cunn. ex Hook.)Tieghem = *Amyema miquellii**Amyema cana* (F.Muell.)Tieghem = *Amyema quandang* var. *quandang**Amyema fitzgeraldii* (Blakely)Danser - NW*Amyema gibberulosa* Tieghem = *Amyema gibberulum* var. *gibberulum**Amyema gibberulum* (Tate)Danser var. *gibberulum* - NW LE NU GT*Amyema hillianum* (Blakely)Danser - NW*Amyema leschenaultii* Tieghem = *Amyema melaleuca**Amyema linophyllum* (Fenzl)Tieghem ssp. *orientale* Barlow - FR EA EP MU KI SE*Amyema maidenii* (Blakely)Barlow ssp. *maidenii* - NW LE NU GT FR EA EP*Amyema melaleuca* (Miq.)Tieghem - NU EP YP SL KI SE*Amyema miquellii* (Lehm. ex Miq.)Tieghem - NW LE NU FR EA EP NL MU YP SL SE*Amyema miraculosum* (Miq.)Tieghem ssp. *boormanii* (Blakely)Barlow -
LE NU GT FR EA EP NL MU YP*Amyema miraculosum* (Miq.)Tieghem var. *boormanii* (Blakely)H.Eichler =
Amyema miraculosum ssp. *boormanii**Amyema nutans* (Cunn. ex Hook.)Tieghem = *Amyema quandang* var. *quandang**Amyema pendulum* (Sieber ex Sprengel)Tieghem ssp. *pendulum* - SL SE*Amyema preissii* (Miq.)Tieghem - NW LE NU GT FR EA EP NL MU YP SL SE*Amyema pruinosa* (Cunn.)Tieghem = *Amyema quandang* var. *quandang**Amyema quandang* (Lindley)Tieghem var. *bancroftii* (Blakely)Barlow - not in S.Aust.*Amyema quandang* (Lindley)Tieghem var. *quandang* - LE NU GT FR EP NL*Amyema sanguineum* (F.Muell.)Danser - NW

91.028 LORANTHACEAE (contd)

- Amyema scoparium* (Miq.) Tieghem = *Amyema preissii*
Amyema spathulata (O.Schwarz) Danser = *Amyema sanguineum*
Dendrophthoe angustifolia (R.Br. ex Benth.) Tieghem = *Lysiana exocarpi* ssp. *exocarpi*
Dendrophthoe pendula (Sieber ex Sprengel) G.Don = *Amyema pendulum* ssp. *pendulum*
Dendrophthoe pruinosa (Cunn. ex Ettingsh.) Ettingsh. = *Amyema quandang* var. *quandang*
Diplatia grandibractea (F.Muell.) Tieghem - NW LE
Diplatia maidenii (Blakely) Danser = *Amyema maidenii* ssp. *maidenii*
Elytranthe exocarpi (Behr) Engl. = *Lysiana exocarpi* ssp. *exocarpi*
Elytranthe murrayi (Tate) Engl. = *Lysiana murrayi*
Loranthus angustifolius R.Br. ex Benth. = *Lysiana exocarpi* ssp. *exocarpi*
Loranthus aurantiacus Cunn. ex Hook. = *Amyema miquelii*
Loranthus bifurcatus Benth. var. *queenslandicus* Domin =
Amyema miraculosum ssp. *boormanii*
Loranthus canus F.Muell. = *Amyema quandang* var. *quandang*
Loranthus celastroides sensu Tate (1890) = *Muellerina eucalyptoides*
Loranthus cunninghamii A.Gray = *Amyema quandang* var. *quandang*
Loranthus diamantinensis J.Black = *Lysiana exocarpi* ssp. *exocarpi*
Loranthus eucalyptifolius Sieber ex Schultes & Schultes f. = *Muellerina eucalyptoides*
Loranthus eucalyptoides DC. = *Muellerina eucalyptoides*
Loranthus exocarpi (Behr) Tieghem = *Lysiana exocarpi* ssp. *exocarpi*
Loranthus exocarpi (Behr) Tieghem var. *flavescens* F.Muell. ex Miq. =
Lysiana exocarpi ssp. *exocarpi*
Loranthus exocarpi (Behr) Tieghem var. *subfalcatus* Domin = *Lysiana subfalcata*
Loranthus exocarpi (Behr) Tieghem var. *venulosa* Blakely = *Lysiana subfalcata*
Loranthus fitzgeraldii Blakely = *Amyema fitzgeraldii*
Loranthus gibberulosus Tieghem = *Amyema gibberulum* var. *gibberulum*
Loranthus gibberulus Tate = *Amyema gibberulum* var. *gibberulum*
Loranthus grandibracteus F.Muell. = *Diplatia grandibractea*
Loranthus hilliana Blakely = *Amyema hillianum*
Loranthus linearifolius Hook. = *Lysiana linearifolia*
Loranthus linophyllus Fenzl = *Amyema linophyllum* ssp. *orientale*
Loranthus linophyllus Fenzl var. *preissii* (Miq.) Ostenf. = *Amyema preissii*
Loranthus maidenii Blakely = *Amyema maidenii* ssp. *maidenii*
Loranthus melaleucac Miq. = *Amyema melaleucac*
Loranthus miniatus S.Moore = *Lysiana murrayi*
Loranthus miquelii Lehm. ex Miq. = *Amyema miquelii*
Loranthus miraculosus Miq. = *Amyema miraculosum* ssp. *boormanii*
Loranthus miraculosus Miq. var. *boormanii* Blakely =
Amyema miraculosum ssp. *boormanii*
Loranthus miraculosus Miq. var. *melaleucac* (Miq.) Blakely = *Amyema melaleucac*
Loranthus miraculosus Miq. var. *pubigera* Blakely = *Amyema miraculosum* ssp. *boormanii*
Loranthus mitchellianus Blakely = *Lysiana linearifolia*
Loranthus murrayi Tate = *Lysiana murrayi*
Loranthus murrayi Tate var. *parviflora* S.Moore = *Lysiana murrayi*
Loranthus nutans Cunn. ex Hook. = *Amyema quandang* var. *quandang*
Loranthus pendulus Sieber ex Sprengel = *Amyema pendulum* ssp. *pendulum*
Loranthus pendulus Sieber ex Sprengel var. *canescens* F.Muell. & Tate =
Amyema quandang var. *quandang*
Loranthus pendulus Sieber ex Sprengel var. *melaleucac* (Miq.) Tate = *Amyema melaleucac*
Loranthus pendulus Sieber ex Sprengel var. *parviflorus* Benth., partly = *Amyema melaleucac*
Loranthus pendulus Sieber ex Sprengel var. *parviflorus* Benth., partly =
Amyema miraculosum ssp. *boormanii*
Loranthus preissii Miq. = *Amyema preissii*
Loranthus pruinosis Cunn. ex Ettingsh. = *Amyema quandang* var. *quandang*
Loranthus quandang (Lindley) Tieghem var. *bancroftii* Blakely =
Amyema quandang var. *bancroftii*
Loranthus quandang Lindley = *Amyema quandang* var. *quandang*
Loranthus quandang sensu Tate (1890) = *Amyema maidenii* ssp. *maidenii*
Loranthus sanguineus F.Muell. = *Amyema sanguineum*
Loranthus scoparius Miq. = *Amyema preissii*
Loranthus spathulatus O.Schwarz = *Amyema sanguineum*
Loranthus subfalcatus Hook. = *Lysiana subfalcata*
Lysiana exocarpi (Behr) Tieghem ssp. *diamantinensis* (J.Black) Barlow =
Lysiana exocarpi ssp. *exocarpi*.

91.028 LORANTHACEAE (contd)

- Lysiana exocarpi* (Behr) Tieghem ssp. *exocarpi* -
NW LE NU GT FR EA EP NL MU YP SL KI SE
Lysiana linearifolia Tieghem - not in S.Aust.
Lysiana murrayi (Tate) Tieghem - NW LE NU GT FR EP
Lysiana subfalcata (Hook.) Barlow - LE
Muellerina celastroides sensu Tate (1890) = *Muellerina eucalyptoides*
Muellerina eucalyptifolia (Sieber ex Schultes & Schultes f.) Tieghem =
Muellerina eucalyptoides
Muellerina eucalyptoides (DC.) Barlow - SE
Phrygilanthus celastroides (Sieber ex Schultes & Schultes f.) H. Eichler =
Muellerina eucalyptoides
Phrygilanthus eucalyptifolius (Sieber ex Schultes & Schultes f.) Engelm. =
Muellerina eucalyptoides
Phrygilanthus eucalyptoides (DC.) Danser = *Muellerina eucalyptoides*
Pilostigma sanguineum (F. Muell.) Tieghem = *Amyema sanguineum*

91.029 VISCACEAE

- Korthalsella japonica* sensu H. Eichler (1965) = *Korthalsella leucothrix*
Korthalsella leucothrix Barlow - NU GT FR
Korthalsella opuntia sensu J. Black (1948) = *Korthalsella leucothrix*
Viscum articulatum sensu J. Black (1924) = *Korthalsella leucothrix*

91.032 POLYGONACEAE

- Acetosa sagittatus* (Thunb.) L. Johnson & B. Briggs = *Rumex sagittatus*
Acetosa vesicaria (L.) A. Löve = *Rumex vesicarius*
Acetosella angiocarpa (Murb.) A. Löve = *Rumex acetosella*
Acetosella vulgaris Fourr. = *Rumex acetosella*
Bilderdykia convolvulus (L.) Dumort. = *Polygonum convolvulus*
**Emex australis* Steinh. - LE GT FR EA EP NL MU ?YP SL KI SE
**Emex spinosa* (L.) Campdera - EP NL
Muehlenbeckia adpressa (Labill.) Meissner - LE GT EP NL MU YP SL KI SE
Muehlenbeckia adpressa (Labill.) Meissner var. *hastifolia* Meissner = *Muehlenbeckia gunnii*
Muehlenbeckia adpressa (Labill.) Meissner var. *rotundifolia* Benth. =
Muehlenbeckia adpressa
Muehlenbeckia coccoloboides J. Black - LE FR MU SE
Muehlenbeckia cunninghamii (Meissner) F. Muell. -
NW LE GT FR EA EP NL MU YP SL SE
Muehlenbeckia diclina (F. Muell.) Druce - LE EP MU SE
Muehlenbeckia gunnii (Hook.f.) Walp. - EP MU YP SL KI SE
Muehlenbeckia horrida Gross - ?GT MU ?SE
Muehlenbeckia polygonoides F. Muell. = *Muehlenbeckia diclina*
Muehlenbeckia stenophylla F. Muell. = *Muehlenbeckia diclina*
Polygonum adpressum Labill. = *Muehlenbeckia adpressa*
Polygonum articulatum R.Br. non L. = *Polygonum attenuatum*
Polygonum attenuatum R.Br. - ?LE
**Polygonum aviculare* L. - LE GT FR EA EP NL MU YP SL SE
**Polygonum capitatum* Buch.-Ham. ex D. Don - ?SL
**Polygonum convolvulus* L. - NL SL SE
Polygonum cunninghamii Meissner = *Muehlenbeckia cunninghamii*
Polygonum decipiens R.Br. = *Polygonum salicifolium*
Polygonum diclinum F. Muell. = *Muehlenbeckia diclina*
**Polygonum glabrum* Willd. - ?LE
Polygonum gunnii Hook.f. = *Muehlenbeckia gunnii*
Polygonum lanigerum R.Br. = *Polygonum lapathifolium*
Polygonum lapathifolium L. - LE EA MU SL SE
Polygonum lapathifolium L. var. *lanigerum* (R.Br.) F. Muell. = *Polygonum lapathifolium*
Polygonum minus sensu J. Black (1948) = *Polygonum salicifolium*
**Polygonum orientale* L. - SL
**Polygonum patulum* M. Bieb. - ?LE FR MU YP SL
Polygonum plebeium R.Br. - NW LE GT FR EA EP MU YP SL SE
Polygonum prostratum R.Br. - FR EP NL MU SL KI SE
**Polygonum salicifolium* Brouss. ex Willd. - LE FR NL MU SL SE
Polygonum serrulatum Lagasca = *Polygonum salicifolium*
**Polygonum strigosum* R.Br. - SL

91.032 POLYGONACEAE (contd)

- **Rumex acetosella* L. - EP NL MU SL KI SE
- Rumex alcockii* Rech.f. - GT FR EA EP YP SE
- Rumex angiocarpus* Murb. = *Rumex acetosella*
- Rumex bidens* R.Br. - MU SL SE
- Rumex brownii* Campdera - FR EA EP NL MU YP SL KI SE
- Rumex* ~~*×*~~*comaumensis* Rech.f. - SE
- **Rumex conglomeratus* Murray - EP NL SL SE
- **Rumex crispus* L. - ?EA EP NL MU YP SL KI SE
- Rumex crystallinus* Lange - LE GT FR EA EP MU KI
- Rumex divaricatus* L. = *Rumex pulcher* ssp. *divaricatus*
- Rumex dumosiformis* Rech.f. = *Rumex dumosus* var. *dumosiformis*
- Rumex dumosus* Cunn. ex Meissner var. *dumosiformis* (Rech.f.)Rech.f. - FR NL SL
- Rumex dumosus* Cunn. ex Meissner var. *dumosus* - FR EA EP NL ?MU SL SE
- Rumex halophilus* F.Muell. = *Rumex crystallinus*
- **Rumex obtusifolius* L. - EP YP SL SE
- **Rumex* ~~*×*~~*pratensis* Mert. & Koch - SL SE
- **Rumex pulcher* L. ssp. *divaricatus* (L.)Murb. - EP
- **Rumex pulcher* L. ssp. *pulcher* - FR EP NL SL SE
- Rumex roseus* sensu J.Black (1948) = *Rumex vesicarius*
- **Rumex sagittatus* Thunb. - SL SE
- Rumex spinosus* L. = *Emex spinosa*
- Rumex tenax* Rech.f. - NU EA MU
- **Rumex vesicarius* L. - NW LE NU GT FR EA EP NL MU YP SL

91.033 PHYTOLACCACEAE

- **Phytolacca octandra* L. - SL

91.037 GYROSTEMONACEAE

- Codonocarpus cotinifolius* (Desf.)F.Muell. - NW LE NU GT EP NL MU
- Codonocarpus pyramidalis* (F.Muell.)F.Muell. - FR EA EP NL MU
- Cyclothea australasica* Moq. = *Gyrostemon australasicus*
- Didymothea cupressiformis* H.Walter = *Gyrostemon tepperi*
- Didymothea tepperi* F.Muell. ex H.Walter = *Gyrostemon tepperi*
- Didymothea thesioides* Hook.f. = *Gyrostemon thesioides*
- Didymothea veroniciformis* F.Muell. = *Gyrostemon thesioides*
- Gyrostemon australasicus* (Moq.)Heimerl - NU FR EP MU YP SL KI SE
- Gyrostemon cotinifolius* Desf. = *Codonocarpus cotinifolius*
- Gyrostemon pyramidalis* F.Muell. = *Codonocarpus pyramidalis*
- Gyrostemon ramulosus* Desf. - NW LE GT EP
- Gyrostemon tepperi* (F.Muell. ex H.Walter)A.S.George - NW LE
- Gyrostemon thesioides* (Hook.f.)A.S.George - EP MU YP KI SE

91.039 NYCTAGINACEAE

- Boerhavia chinensis* (L.)Asch. & Schweinf. = *Commicarpus chinensis*
- Boerhavia coccinea* Miller - NW LE GT FR EA NL MU
- Boerhavia diandra* L. = *Boerhavia diffusa*
- Boerhavia diffusa* L. - not in S.Aust.
- Boerhavia diffusa* sensu J.Black (1948), partly = *Boerhavia coccinea*
- Boerhavia diffusa* sensu J.Black (1948), partly = *Boerhavia dominii*
- Boerhavia diffusa* sensu J.Black (1948), partly = *Boerhavia schomburgkiana*
- Boerhavia dominii* Meikle & Hewson - NW LE GT FR EA EP NL MU YP SL
- Boerhavia mutabilis* R.Br., partly = *Boerhavia diffusa*
- Boerhavia mutabilis* R.Br., partly = *Boerhavia coccinea*
- Boerhavia pubescens* R.Br. = *Boerhavia coccinea*
- Boerhavia pubescens* R.Br. = *Boerhavia diffusa*
- Boerhavia repanda* Willd. = *Commicarpus chinensis*
- Boerhavia repanda* sensu J.Black (1948) = *Commicarpus australis*
- Boerhavia repens* L. = *Boerhavia diffusa*
- Boerhavia repens* L. var. *pubescens* (R.Br.)Fosberg = *Boerhavia coccinea*
- Boerhavia schomburgkiana* Oliver - NW LE GT FR EA MU
- Boerhavia tetrandra* Forster f. = *Boerhavia diffusa*
- Commicarpus australis* Meikle - NW LE FR EA
- Commicarpus chinensis* (L.)Heimerl - not in S.Aust.
- Commicarpus chinensis* sensu Pedley (1981) = *Commicarpus australis*

91.039 NYCTAGINACEAE (contd)**Mirabilis jalapa* L. - FR ?SL*Valeriana chinensis* L. = *Commicarpus chinensis***91.040 AIZOACEAE***Aizoon kochii* W.Wagner = *Gunniopsis kochii**Aizoon pubescens* Ecklon & Zeyher = *Galenia pubescens* var. *pubescens**Aizoon quadrifidum* (F.Muell.)F.Muell. = *Gunniopsis quadrifida**Aizoon secundum* L.f. = *Galenia secunda**Aizoon zygophylloides* F.Muell. = *Gunniopsis zygophylloides**Aizoon zygophylloides* sensu J.Black (1948), partly = *Gunniopsis papillata***Aptenia cordifolia* (L.f.)Schwantes - EP SL*Carpobrotus acinaciformis* (L.)L.Bolus - not in S.Aust.*Carpobrotus aequilateralis* (Willd.)J.Black = *Carpobrotus aequilaterus***Carpobrotus aequilaterus* (Haw.)N.E.Br. - EP SL SE*Carpobrotus aequilaterus* sensu J.Black (1948) = *Carpobrotus rossii***Carpobrotus edulis* (L.)L.Bolus - ?EP SL KI SE*Carpobrotus glaucescens* (Haw.)Schwantes - not in S.Aust.*Carpobrotus modestus* S.T.Blake - EP NL MU SL SE*Carpobrotus pulleinei* J.Black = *Sarcozona praecox**Carpobrotus rossii* (Haw.)Schwantes - NU FR EP NL MU YP SL KI SE*Cryophytum aitonis* (Jacq.)N.E.Br. = *Mesembryanthemum aitonis**Cryophytum crystallinum* (L.)N.E.Br. ex E.Phillips = *Mesembryanthemum crystallinum**Cryophytum nodiflorum* (L.)L.Bolus = *Mesembryanthemum nodiflorum**Demidovia tetragonoides* Pallas = *Tetragonia tetragonoides**Disphyma australe* sensu J.Black (1948) = *Disphyma crassifolium* ssp. *clavellatum**Disphyma blackii* Chinn. = *Disphyma crassifolium* ssp. *clavellatum**Disphyma clavellatum* (Haw.)Chinn. = *Disphyma crassifolium* ssp. *clavellatum**Disphyma crassifolium* (L.)L.Bolus ssp. *crassifolium* - not in S.Aust.**Drosanthemum candens* (Haw.)Schwantes - SL*Drosanthemum floribundum* sensu J.Black (1948) = *Drosanthemum candens***Galenia pubescens* (Ecklon & Zeyher)Druce var. *pubescens* - LE NU FR EP NL YP SL**Galenia secunda* (L.f.)Sonder - EP NL MU YP SL SE*Galenia secunda* sensu J.Black (1948) = *Galenia pubescens* var. *pubescens**Gasoul aitonis* (Jacq.)H.Eichler = *Mesembryanthemum aitonis**Gasoul crystallinum* (L.)Rothm. = *Mesembryanthemum crystallinum**Gasoul nodiflorum* (L.)Rothm. = *Mesembryanthemum nodiflorum**Gigaspermum repens* (Hook.)Lindb. (a moss - Musci)*Glinus lotoides* L. - LE GT FR EA EP MU*Glinus oppositifolia* (L.)R.DC. - LE MU*Glinus orygioides* F.Muell. - LE*Glinus spergula* (L.)Steudel = *Glinus oppositifolia**Gunnia septifraga* F.Muell. = *Gunniopsis septifraga**Gunniopsis calcarea* Chinn. - NU*Gunniopsis calva* Chinn. - GT EP*Gunniopsis kochii* (W.Wagner)Chinn. - LE GT FR*Gunniopsis papillata* Chinn. - LE FR EA*Gunniopsis quadrifida* (F.Muell.)Pax - NW LE NU GT FR EA EP*Gunniopsis septifraga* (F.Muell.)Chinn. - NW LE NU GT EP*Gunniopsis tenuifolia* Chinn. - LE FR*Gunniopsis zygophylloides* (F.Muell.)Diels - LE GT*Lampranthus glaucoides* sensu H.Eichler (1965) = *Lampranthus glaucus***Lampranthus glaucus* (L.)N.E.Br. - SL*Litocarpus cordifolius* (L.f.)L.Bolus = *Aptenia cordifolia**Mesembryanthemum aequilaterale* Willd. = *Carpobrotus aequilaterus**Mesembryanthemum aequilaterum* Haw. = *Carpobrotus aequilaterus***Mesembryanthemum aitonis* Jacq. - NU GT FR EP NL MU YP SL*Mesembryanthemum angulatum* Thunb. = *Mesembryanthemum aitonis**Mesembryanthemum aurantiacum* sensu J.Black (1948) = *Lampranthus glaucus**Mesembryanthemum australe* Aiton = *Disphyma crassifolium* ssp. *clavellatum**Mesembryanthemum caducum* sensu J.Black (1948) = *Mesembryanthemum nodiflorum**Mesembryanthemum candens* Haw. = *Drosanthemum candens**Mesembryanthemum clavellatum* Haw. = *Disphyma crassifolium* ssp. *clavellatum**Mesembryanthemum cordifolium* L.f. = *Aptenia cordifolia**Mesembryanthemum crassifolium* L. = *Disphyma crassifolium* ssp. *clavellatum*

91.040 AIZOACEAE (contd)

- **Mesembryanthemum crystallinum* L. - NU GT EP NL MU YP SL KI SE
Mesembryanthemum edule L. = *Carpobrotus edulis*
Mesembryanthemum floribundum sensu J.Black (1948) = *Drosanthemum candens*
Mesembryanthemum glaucescens Haw. = *Carpobrotus glaucescens*
Mesembryanthemum glaucum L. = *Lampranthus glaucus*
Mesembryanthemum laxum sensu Ewart (1931) = *Ruschia tumidula*
 **Mesembryanthemum nodiflorum* L. - GT FR EP NL MU YP SL SE
Mesembryanthemum papulosum L.f. = *Micropterum papulosum*
Mesembryanthemum praecox F.Muell. = *Sarcozona praecox*
Mesembryanthemum rossii Haw. = *Carpobrotus rossii*
Mesembryanthemum tenue Haw. = *Psilocaulon tenue*
Mesembryanthemum tumidulum Haw. = *Ruschia tumidula*
 **Micropterum papulosum* (L.f.)Schwantes - EP
Mollugo cerviana (L.)Ser. - NW LE GT FR EA EP
Mollugo glinuz A.Rich. = *Glinus lotoides*
Mollugo hirta Thunb. = *Glinus lotoides*
Mollugo oppositifolia L. = *Glinus oppositifolia*
Mollugo orygioides (F.Muell.)F.Muell ex Benth. = *Glinus orygioides*
Mollugo spargula L. = *Glinus oppositifolia*
Neogunnia septifraga (F.Muell.)Pax & Hoffm. = *Gunniopsis septifraga*
Pharnaceum cervianum L. = *Mollugo cerviana*
Psilocaulon caducum sensu J.Black (1948) = *Mesembryanthemum nodiflorum*
 **Psilocaulon tenue* (Haw.)Schwantes - EA MU
 **Ruschia tumidula* (Haw.)Schwantes - EP MU SL
Sarcozona bicarinata S.T.Blake - EP YP
Sarcozona praecox (F.Muell.)S.T.Blake - NW LE NU GT FR EA EP NL MU
Sarcozona pullei (J.Black)J.Black = *Sarcozona praecox*
Sesuvium quadrifidum F.Muell. = *Gunniopsis quadrifida*
Tetragonella implexicoma Miq. = *Tetragonia implexicoma*
Tetragonia amplexicoma (Miq.)Hook.f. = *Tetragonia implexicoma*
 **Tetragonia decumbens* Miller - SL
Tetragonia eremaea Ostenf. - NW LE NU GT FR EA EP NL MU YP
Tetragonia expansa Murray = *Tetragonia tetragonoides*
Tetragonia implexicoma (Miq.)Hook.f. - NU EP NL MU YP SL KI SE
Tetragonia tetragonoides (Pallas)Kuntze - LE NU GT EA EP NL MU YP SE
Tetragonia zeyheri Fenzl = *Tetragonia decumbens*
Trianthema australis sensu Chippendale (1972) = *Zaleya galericulata*
Trianthema crystallina (Forsskal)Vahl var. *clavata* J.Black = *Trianthema triquetra*
Trianthema crystallina sensu J.Black (1948) = *Trianthema triquetra*
Trianthema decandra sensu J.Black (1948) = *Zaleya galericulata*
Trianthema galericulata Melville = *Zaleya galericulata*
Trianthema glaucifolia F.Muell. = *Trianthema triquetra*
Trianthema humillima F.Muell. = *Gigaspermum repens*
Trianthema maidenii S.Moore = *Tetragonia implexicoma*
Trianthema pilosa F.Muell. - LE
Trianthema triquetra Willd. - NW LE GT FR EA EP SL
Trianthema triquetra Willd. var. *clavata* (J.Black)H.Eichler = *Trianthema triquetra*
Trianthema turgidifolia sensu J.Black (1948) = *Tetragonia implexicoma*
Zaleya decandra sensu Tate (1890) = *Zaleya galericulata*
Zaleya galericulata (Melville)H.Eichler - NW LE GT FR EP NL MU SL

91.042 PORTULACACEAE

- Anacampseros australiana* J.Black - ?NW ?LE GT FR
Calandrinia balonensis Lindley - NW LE
Calandrinia brevipedata F.Muell. - EP SL SE
Calandrinia calyptrata Hook.f. - LE EP FR NL MU SL KI SE
Calandrinia calyptrata Hook.f. var. *pumila* Benth. = *Calandrinia pumila*
Calandrinia caulescens Kunth var. *menziesii* (Hook.)A.Gray = *Calandrinia menziesii*
Calandrinia corrigioloides F.Muell. ex Benth. - NW EP MU YP SL KI SE
Calandrinia cygnorum Diels = *Calandrinia brevipedata*
Calandrinia dipetala J.Black = *Calandrinia calyptrata*
Calandrinia disperma J.Black - NW NU GT EP
Calandrinia eremaea Ewart - NW LE NU GT FR EA EP NL MU YP SL SE
Calandrinia granulifera Benth. - EP MU SL SE

91.042 PORTULACACEAE (contd)

- Calandrinia maryonii* S.Moore = *Calandrinia ptychosperma*
 **Calandrinia menziesii* (Hook.)Torrey & A.Gray - MU SL SE
Calandrinia morrisiae Goy = *Calandrinia ptychosperma*
Calandrinia neesiana H.Eichler = *Calandrinia granulifera*
Calandrinia polyandra Benth. var. *leptophylla* Benth. - ?not in S.Aust.
Calandrinia polyandra Benth. var. *polyandra* - NW LE NU GT FR EP
Calandrinia ptychosperma F.Muell. - NW LE GT FR EA
Calandrinia pumila (Benth.)F.Muell. - LE
Calandrinia pusilla Lindley = *Calandrinia eremaea*
Calandrinia pygmaea F.Muell. = *Calandrinia granulifera*
Calandrinia remota J.Black - NW LE NU GT FR
Calandrinia reticulata Syeda - NW LE
Calandrinia sphaerophylla J.Black - EP
Calandrinia stagnensis J.Black - LE
Calandrinia volubilis Benth. - GT FR EP MU SL
Calandrinia volubilis sensu J.Black (1948) = *Calandrinia eremaea*
Claytonia australasica Hook.f. = *Montia australasica*
Claytonia corrigiolacea F.Muell. = *Calandrinia corrigioloides*
 **Claytonia perfoliata* Donn ex Willd. - ?SL
Montia australasica (Hook.f.)Pax & K.Hoffm. - MU SL KI SE
Montia fontana L. ssp. *chondrosperma* (Fenzl)Walters - SL
Montia fontana L. var. *chondrosperma* Fenzl = *Montia fontana* ssp. *chondrosperma*
Neopaxia australasica (Hook.f.)O.Nilsson = *Montia australasica*
Paxia australasica (Hook.f.)O.Nilsson = *Montia australasica*
Portulaca filifolia F.Muell. - NW LE
Portulaca intraterranea J.Black - LE
Portulaca oleracea L. - NW LE GT FR EA YP SL SE
Portulaca oleracea L. var. *grandiflora* Benth. = *Portulaca intraterranea*
Portulaca pilosa sensu Toelken (1981) = *Portulaca filifolia*
Talinum menziesii Hook. = *Calandrinia menziesii*
Talinum nanum Nees = *Calandrinia granulifera*

91.043 BASELLACEAE

- **Anredera cordifolia* (Ten.)Steenis - SL SE
Boussingaultia cordifolia Ten. = *Anredera cordifolia*

91.044 CARYOPHYLLACEAE

- Agrostemma coronaria* L. = *Lychnis coronaria*
 **Agrostemma githago* L. - ?SL
Alsine media L. = *Stellaria media*
Alsine pallida Dumort. = *Stellaria pallida*
Alsine tenuifolia (L.)Crantz = *Minuartia hybrida*
Arenaria campestris (L.)Asch. = *Spergularia rubra*
Arenaria diandra Guss. = *Spergularia diandra*
Arenaria hybrida Villars = *Minuartia hybrida*
 **Arenaria leptoclados* (Reichb.)Guss. - ?NL ?SE
Arenaria marginata DC. = *Spergularia media*
Arenaria media L. = *Spergularia media*
Arenaria rubra L. = *Spergularia rubra*
Arenaria rubra L. var. *campestris* L. = *Spergularia rubra*
Arenaria rubra L. var. *marina* L. = *Spergularia marina*
 **Arenaria serpyllifolia* L. - MU YP SL SE
Arenaria tenuifolia L. = *Minuartia hybrida*
Behen vulgaris Moench = *Silene vulgaris* ssp. *vulgaris*
Cerastium balearicum F.Herm. - ?not in S.Aust.
 **Cerastium diffusum* Pers. - YP SE
Cerastium fontanum Baumg. ssp. *triviale* (Link)Jalas - ?not in S.Aust.
 **Cerastium glomeratum* Thuill. - FR EP NL MU YP SL KI SE
Cerastium quaternellum Fenzl = *Moenchia erecta*
 **Cerastium semidecandrum* L. - EP NL MU YP SL KI SE
Cerastium viscosum L. = *Cerastium glomeratum*
Cerastium vulgatum sensu J.Black (1909) = *Cerastium glomeratum*
Colobanthus apetalus (Labill.)Druce - SE
Cucubalus behen L. = *Silene vulgaris* ssp. *vulgaris*

91.044 CARYOPHYLLACEAE (contd)

- Cucubalus inflatus* Wibel = *Silene vulgaris* ssp. *vulgaris*
Dianthus nanteuillii Burnat = *Petrorhagia nanteuillii*
Dianthus velutinus Guss. = *Petrorhagia velutina*
Dichoglottis australis Schldl. = *Gypsophila australis*
Drymaria filiformis Benth. = *Stellaria filiformis*
Gypsophila australis (Schldl.) A.Gray - NW GT FR EP NL MU YP SE
Gypsophila tubulosa sensu J.Black (1948) = *Gypsophila australis*
**Herniaria hirsuta* L. - FR EA EP NL MU YP SL
Herniaria incana sensu Tate (1890) = *Herniaria hirsuta*
Lychnis alba Miller = *Silene pratensis*
**Lychnis coronaria* (L.) Desr. - SL
Lychnis dioica L. = *Silene dioica*
Lychnis dioica L. var. *rubra* Weigel = *Silene dioica*
Lychnis diurna Sibth. = *Silene dioica*
Lychnis pratensis Rafn = *Silene pratensis*
Melandrium dioicum (L.) Cosson & Germ. = *Silene dioica*
Melandrium diurnum (Sibth.) Fries = *Silene dioica*
Melandrium rubrum (Weigel) Garcke = *Silene dioica*
**Minuartia hybrida* (Villars) Schischkin - EA EP NL MU YP SL KI SE
Minuartia tenuifolia (L.) Hiern = *Minuartia hybrida*
**Moenchia erecta* (L.) Gaertner - MU SL SE
Mollugo tetraphylla L. = *Polycarpon tetraphyllum*
**Paronychia argentea* Lam. - MU
**Paronychia brasiliiana* DC. - NL SL
Paronychia chilensis DC. = *Paronychia brasiliiana*
**Petrorhagia nanteuillii* (Burnat) P.Ball & Heyw. - MU SL KI SE
Petrorhagia prolifera sensu H.Eichler (1965) = *Petrorhagia nanteuillii*
Petrorhagia velutina (Guss.) P.Ball & Heyw. - FR EP MU YP SL KI SE
Polycarpaea arida Pedley - NW LE
Polycarpaea corymbosa (L.) Lam. var. *minor* Pedley - ?not in S.Aust.
Polycarpaea corymbosa sensu J.Black (1948) = *Polycarpaea arida*
Polycarpaea glabra C.White & Francis = *Polycarpaea spirostylis* ssp. *glabra*
Polycarpaea spirostylis F.Muell. ssp. *glabra* (C.White & Francis) Pedley - LE GT
Polycarpaea synandra F.Muell. = *Polycarpaea spirostylis* ssp. *glabra*
Polycarpon diphyllum Cav. = *Polycarpon tetraphyllum*
**Polycarpon tetraphyllum* (L.) L. - FR EP MU YP SL KI SE
Polycarpon tetraphyllum (L.) L. var. *diphyllum* (Cav.) DC. = *Polycarpon tetraphyllum*
**Sagina apetala* Ard. - GT FR EP NL MU YP SL KI SE
Sagina erecta L. = *Moenchia erecta*
**Sagina maritima* Don - ?NU EP MU YP SL KI SE
Sagina procumbens L. - SL SE
Saponaria hispanica Miller = *Vaccaria hispanica*
Saponaria segetalis Necker = *Vaccaria hispanica*
Saponaria vaccaria L. = *Vaccaria hispanica*
Scleranthus diander R.Br. - SE
Scleranthus minusculus F.Muell. - EP MU SL SE
Scleranthus pungens R.Br. - FR EA EP NL MU YP SL KI
Silene alba (Miller) Krause = *Silene pratensis*
Silene anglica L. = *Silene gallica* var. *gallica*
**Silene apetala* L. - EP MU
**Silene conica* L. - SL SE
Silene cucubalus Wibel = *Silene vulgaris* ssp. *vulgaris*
**Silene dichotoma* Ehrh. - ?SL
**Silene dioica* (L.) Clairv. - ?SL
**Silene gallica* L. var. *gallica* - FR EP NL MU YP SL KI SE
**Silene gallica* L. var. *quinquevulnera* (L.) Koch - SL
Silene inflata (Salisb.) Smith = *Silene vulgaris* ssp. *vulgaris*
**Silene longicaulis* Pourret ex Lagasca - MU
**Silene nocturna* L. ssp. *nocturna* - FR EA EP NL MU YP SL KI SE
**Silene pendula* L. - ?SL
**Silene pratensis* (Rafn) Godron & Gren. - SE
Silene quinquevulnera L. = *Silene gallica* var. *quinquevulnera*
**Silene schafta* J.Gmelin ex Hohen. - SL SE
**Silene vulgaris* (Moench) Garcke ssp. *vulgaris* - EP MU YP SL KI SE

91.044 CARYOPHYLLACEAE (contd).**Spergularia arvensis* L. - SL SE*Spergularia apetala* Labill. = *Colobanthus apetalus**Spergularia bocconii* (Scheele) Asch. & Graebner - ?not in S.Aust.*Spergularia campestris* (L.) Asch. = *Spergularia rubra***Spergularia diandra* (Guss.) Boiss. - LE NU GT FR EA EP NL MU YP SL*Spergularia marginata* (DC.) Kittel = *Spergularia media***Spergularia marina* (L.) Griseb. - LE GT FR EA EP NL MU YP SL KI SE**Spergularia media* (L.) C.Presl - EP NL MU YP SL KI SE*Spergularia pinguis* (Fenzl) Rouy & Fouc. = *Spergularia rubra***Spergularia rubra* (L.) J.S. & C.Presl - NW LE GT FR EA EP NL MU YP SL KI SE*Spergularia rubra* (L.) J.S. & C.Presl var. *pinguis* Fenzl. = *Spergularia rubra**Spergularia salina* J.S. & C.Presl = *Spergularia marina**Stellaria caespitosa* Hook.f. - MU KI SE*Stellaria filiformis* (Benth.) Mattf. - EP MU YP*Stellaria glauca* With. var. *caespitosa* (Hook.f.) Benth. = *Stellaria caespitosa**Stellaria glauca* With. var. *tenella* Benth. = *Stellaria palustris* var. *tenella***Stellaria media* (L.) Villars - FR EP NL MU YP SL KI SE*Stellaria multiflora* Hook. - NU FR EP MU SL KI SE**Stellaria pallida* (Dumort.) Piré - FR EP NL MU YP SL SE*Stellaria palustris* Ehrh. ex Retz. var. *caespitosa* (Hook.f.) J.Black = *Stellaria caespitosa***Stellaria palustris* Ehrh. ex Retz. var. *palustris* - NL MU SL KI SE*Stellaria palustris* Ehrh. ex Retz. var. *tenella* (Benth.) J.Black - MU SL*Stellaria pungens* Brongn. - NL ?SL SE*Tunica prolifera* (L.) Scop. = *Petrorhagia nanteuillii**Tunica velutina* (Guss.) Fischer & C.Meyer = *Petrorhagia velutina***Vaccaria hispanica* (Miller) Rauschert - NW LE FR ?EP ?MU YP SL ?SE*Vaccaria parviflora* Moench = *Vaccaria hispanica**Vaccaria pyramidata* Medikus = *Vaccaria hispanica**Vaccaria segetalis* (Necker) Garcke = *Vaccaria hispanica***91.047 CHENOPODIACEAE***Anisacantha diacantha* Nees = *Sclerolaena diacantha**Anisacantha divaricata* R.Br. = *Sclerolaena divaricata**Anisacantha lanicuspis* F.Muell. = *Sclerolaena lanicuspis**Anisacantha muricata* Moq. = *Sclerolaena muricata* var. *muricata**Anisacantha quinquecuspis* F.Muell. = *Sclerolaena muricata* var. *muricata**Anisacantha tricuspidis* F.Muell. = *Sclerolaena tricuspidis**Arthrocnemum arbuscula* (R.Br.) Moq. = *Sclerostegia arbuscula**Arthrocnemum halocnemoides* Nees = *Halosarcia halocnemoides* ssp. *halocnemoides**Arthrocnemum halocnemoides* Nees var. *pergranulatum* J.Black =*Halosarcia pergranulata* ssp. *pergranulata**Arthrocnemum halocnemoides* Nees var. *pterygospermum* J.Black =*Halosarcia pterygosperma* ssp. *pterygosperma**Arthrocnemum leiostachyum* (Benth.) Paulsen = *Halosarcia indica* ssp. *leiostachya**Arthrocnemum triandrum* F.Muell. = *Pachycornia triandra**Atriplex acutibractea* R.Anderson ssp. *acutibractea* - LE NU GT FR EA EP NL MU*Atriplex acutibractea* R.Anderson ssp. *karoniensis* Aellen - NU GT FR EP NL SL*Atriplex acutiloba* R.Anderson - ?not in S.Aust.*Atriplex angulata* Benth. - LE GT FR EA EP NL MU*Atriplex australasica* Moq. - MU SL SE*Atriplex billardieri* (Moq.) Hook.f. = *Theleophyton billardieri**Atriplex campanulata* Benth. var. *adnata* J.Black = *Atriplex eichleri**Atriplex campanulata* sensu Benth. (1870) = *Atriplex eardleyae**Atriplex cinerea* Poiré - NU EP NL YP SL KI SE*Atriplex conduplicata* F.Muell. = *Atriplex lindleyi**Atriplex cordifolia* J.Black - LE NU EA FR*Atriplex crassipes* J.Black - LE GT FR*Atriplex cryptocarpa* Aellen - NU*Atriplex eardleyae* Aellen - LE NU GT FR EA EP NL MU YP*Atriplex eichleri* Aellen - FR*Atriplex elachophylla* F.Muell. - NW LE*Atriplex fasciculiflora* Aellen = *Atriplex acutibractea* ssp. *karoniensis**Atriplex fissivalvis* F.Muell. - LE GT FR*Atriplex glomulifera* Nees = *Dysphania glomulifera* ssp. *glomulifera*

91.047 CHENOPODIACEAE (contd)

- Atriplex halimoides* Lindley = *Atriplex lindleyi*
Atriplex hastata sensu J.Black (1948) = *Atriplex prostrata*
Atriplex holocarpa F.Muell. - NW LE GT FR EA EP NL MU
Atriplex incrassata F.Muell. - LE GT
Atriplex inflata F.Muell. = *Atriplex lindleyi* ssp. *inflata*
Atriplex intermedia R.Anderson - LE
Atriplex kochiana Maiden - LE GT FR
Atriplex leptocarpa F.Muell. - NW LE GT NL MU YP
Atriplex leptocarpa F.Muell. var. *acuminata* J.Black =
Atriplex acutibractea ssp. *acutibractea*
Atriplex leptocarpa F.Muell. var. *armata* Aellen = *Atriplex leptocarpa*
Atriplex leptocarpa F.Muell. var. *inermis* Aellen = *Atriplex leptocarpa*
Atriplex leptocarpa F.Muell. var. *inermis* Aellen forma *minor* R.Anderson = *Atriplex sturtii*
Atriplex leptocarpa F.Muell. var. *leptocarpa* forma *gracilis* Aellen =
Atriplex leptocarpa
Atriplex leptocarpa F.Muell. var. *minor* (R.Anderson)J.Black = *Atriplex sturtii*
Atriplex limbata Benth. - NW LE GT FR EA MU
Atriplex limbata Benth. var. *sexifida* J.Black = *Atriplex limbata*
Atriplex lindleyi Moq. ssp. *conduplicata* (F.Muell.)Paul G.Wilson -
 LE GT FR EA EP YP
Atriplex lindleyi Moq. ssp. *inflata* (F.Muell.)Paul G.Wilson -
 NW LE GT FR EA EP NL MU YP
Atriplex lindleyi Moq. ssp. *lindleyi* - LE FR EA NL MU
Atriplex lindleyi Moq. ssp. *quadripartita* Paul. G.Wilson - LE GT FR EA
Atriplex lindleyi Moq. var. *quadripartita* J.Black, partly =
Atriplex lindleyi ssp. *quadripartita*
Atriplex lindleyi Moq. var. *quadripartita* J.Black, partly = *Atriplex lindleyi*
Atriplex lobativalvis F.Muell. - LE EA
Atriplex lobativalvis F.Muell. var. *biarcuata* Aellen = *Atriplex lobativalvis*
Atriplex macropterocarpa (Aellen)H.Eichler - LE GT FR ?EA MU
Atriplex morrisii R.Anderson - LE NU FR
Atriplex muelleri Benth. - LE NU
Atriplex nessorhina S.W.L.Jacobs - GT
Atriplex nummularia Lindley ssp. *nummularia* - NW LE GT FR EA NL MU
Atriplex nummularia Lindley ssp. *omissa* Aellen - NW
Atriplex nummularia Lindley ssp. *spathulata* Aellen - NU
Atriplex paludosa R.Br. ssp. *baudinii* Aellen var. *acuticordata* Aellen =
Atriplex paludosa ssp. *paludosa*
Atriplex paludosa R.Br. ssp. *baudinii* Aellen var. *cordivalvis* Aellen =
Atriplex paludosa ssp. *paludosa*
Atriplex paludosa R.Br. ssp. *cordata* (Benth.)Aellen - NU EP MU YP SL KI
Atriplex paludosa R.Br. ssp. *paludosa* - SL SE
Atriplex paludosa R.Br. var. *appendiculata* Benth. = *Atriplex vesicaria* ssp. *appendiculata*
Atriplex paludosa R.Br. var. *paludosa* = *Atriplex paludosa* ssp. *paludosa*
Atriplex papillata J.H.Willis - MU
 **Atriplex patula* L. - status uncertain
 **Atriplex prostrata* DC. - GT EP NL MU YP SL SE
Atriplex prostrata R.Br. = *Atriplex pumilio*
Atriplex pseudocampanulata Aellen - LE GT
Atriplex pumilio R.Br. - LE NU GT EP NL MU YP
Atriplex quadrivalvata Diels var. *quadrivalvata* - LE
Atriplex quadrivalvata Diels var. *sessilifolia* (Ising)Ising - LE
Atriplex quinii F.Muell. - LE GT
Atriplex reniformis R.Br. = *Atriplex paludosa* ssp. *cordata*
Atriplex rhagodioides F.Muell. - MU SE
Atriplex semibaccata R.Br. - FR EA EP NL MU YP SL KI SE
Atriplex spongiivalvis Aellen = *Atriplex acutibractea* ssp. *karoniensis*
Atriplex spongiosa F.Muell. - NW LE NU GT FR EA EP NL MU
Atriplex spongiosa F.Muell. var. *holocarpa* (F.Muell.)J.Black = *Atriplex holocarpa*
Atriplex stipitata Benth. - LE NU GT FR EA EP NL MU YP
Atriplex sturtii S.W.L.Jacobs - LE FR EP
Atriplex suberecta I.Verd. - LE EP NL MU YP SL KI SE
Atriplex turbinata (R.Anderson)Aellen - NW LE FR
Atriplex varia Ewart & O.B.Davies = *Atriplex elachophylla*

91.047 CHENOPODIACEAE (contd)*Atriplex velutinella* F.Muell. - LE GT FR EA EP MU*Atriplex vesicaria* Heward ex Benth. ssp. *appendiculata* (Benth.)Parr-Smith - NU*Atriplex vesicaria* Heward ex Benth. ssp. *calicicola* Parr-Smith - NW LE GT FR EA*Atriplex vesicaria* Heward ex Benth. ssp. *macrotydida* Parr-Smith - GT FR EA NL*Atriplex vesicaria* Heward ex Benth. ssp. *sphaerocarpa* Parr-Smith - NW GT FR EP*Atriplex vesicaria* Heward ex Benth. ssp. *variabilis* Parr-Smith - NW LE NU GT EP NL*Babbagia acroptera* F.Muell. & Tate = *Osteocarpum acropterum* var. *acropterum**Babbagia acroptera* F.Muell. & Tate var. *diminuta* J.Black =*Osteocarpum acropterum* var. *diminutum**Babbagia dipteroarpa* F.Muell. = *Osteocarpum dipteroarpum**Babbagia pentaptera* F.Muell. & Tate = *Osteocarpum pentapterum**Babbagia scleroptera* F.Muell. - not in S.Aust.*Bassia aellenii* Ising = *Sclerolaena aellenii**Bassia albolanata* Ising = *Malacocera albolanata**Bassia andersonii* Ising = *Sclerolaena glabra**Bassia articulata* J.Black = *Sclerolaena articulata**Bassia bicornis* (Lindley)F.Muell. = *Sclerolaena bicornis**Bassia bicuspis* (F.Muell.)F.Muell. = *Sclerolaena bicuspis**Bassia biflora* (R.Br.)F.Muell. =*Dissocarpus biflorus* var. *biflorus**Bassia biflora* (R.Br.)F.Muell. var. *cephalocarpa* (F.Muell.)R.Anderson =*Dissocarpus biflorus* var. *cephalocarpus**Bassia birchii* F.Muell. = *Sclerolaena birchii**Bassia blackiana* Ising = *Sclerolaena blackiana**Bassia brachyptera* (F.Muell.)R.Anderson = *Sclerolaena brachyptera**Bassia brevifolia* Ising = *Sclerolaena brevifolia**Bassia calcarata* Ising = *Sclerolaena calcarata**Bassia caput-casuarii* J.H.Willis = *Sclerolaena caput-casuarii**Bassia carnosa* (Moq.)F.Muell. = *Maireana carnosa**Bassia clelandii* Ising = *Sclerolaena clelandii**Bassia constricta* Ising = *Sclerolaena constricta**Bassia convexula* R.Anderson = *Sclerolaena convexula**Bassia cornishiana* F.Muell. = *Sclerolaena cornishiana**Bassia costata* R.Anderson = *Sclerolaena costata**Bassia cristata* Ising = *Sclerolaena cristata**Bassia decurrens* J.Black = *Sclerolaena decurrens**Bassia diacantha* (Nees)F.Muell. = *Sclerolaena diacantha**Bassia divaricata* (R.Br.)F.Muell. = *Sclerolaena divaricata**Bassia echinopsila* sensu J.Black = *Sclerolaena murrayae**Bassia cichleri* Ising = *Sclerolaena holtiana**Bassia enchylaenoides* F.Muell. = *Maireana enchylaenoides**Bassia eremaea* Ising = *Eremophea spinosa**Bassia eriakantha* (F.Muell.)R.Anderson = *Sclerolaena eriakantha**Bassia crinacea* Moq. = *Sclerolaena divaricata**Bassia eriochiton* Tate = *Eriochiton sclerolaenoides**Bassia holtiana* Ising = *Sclerolaena holtiana**Bassia inchoata* J.Black = *Threlkeldia inchoata**Bassia intricata* R.Anderson = *Sclerolaena intricata**Bassia johnsonii* Ising = *Sclerolaena johnsonii**Bassia lanata* Ising = *Sclerolaena lanata**Bassia lanicuspis* (F.Muell.)F.Muell. = *Sclerolaena lanicuspis**Bassia lanuginosa* C.White = *Maireana carnosa**Bassia limbata* J.Black = *Sclerolaena limbata**Bassia longicuspis* F.Muell. = *Sclerolaena longicuspis**Bassia luehmannii* F.Muell. = *Maireana luehmannii**Bassia murrayae* Ising = *Sclerolaena murrayae**Bassia nitida* Ising = *Sclerolaena nitida**Bassia obliquicuspis* Ising = *Sclerolaena obliquicuspis**Bassia oppositicuspis* Ising = *Sclerolaena oppositicuspis**Bassia paradoxa* (R.Br.)F.Muell. = *Dissocarpus paradoxus**Bassia paradoxa* (R.Br.)F.Muell. var. *latifolia* J.Black = *Dissocarpus latifolius**Bassia parallelicuspis* R.Anderson = *Sclerolaena parallelicuspis**Bassia parviflora* R.Anderson = *Sclerolaena parviflora**Bassia patentispis* R.Anderson = *Sclerolaena patentispis*

91.047 CHENOPODIACEAE (contd)*Bassia quinquecuspis* (F.Muell.) F.Muell. = *Sclerolaena muricata* var. *muricata**Bassia quinquecuspis* (F.Muell.) F.Muell. var. *villosa* (Benth.) J.Black =*Sclerolaena muricata* var. *villosa**Bassia salsuginosa* F.Muell. = *Osteocarpum salsuginosum**Bassia sclerolaenoides* (F.Muell.) F.Muell. = *Eriochiton sclerolaenoides**Bassia stelligera* (F.Muell.) F.Muell. = *Sclerolaena stelligera**Bassia tatei* F.Muell. = *Sclerolaena tatei**Bassia tricuspis* (F.Muell.) R.Anderson = *Sclerolaena tricuspis**Bassia uniflora* (R.Br.) F.Muell. = *Sclerolaena uniflora**Bassia ventricosa* J.Black = *Sclerolaena ventricosa**Beta maritima* L. = *Beta vulgaris* ssp. *maritima** *Beta vulgaris* L. ssp. *maritima* (L.) Thell. - YP SL KI*Beta vulgaris* L. var. *maritima* (L.) Moq. = *Beta vulgaris* ssp. *maritima**Blackiella conduplicata* (F.Muell.) Aellen = *Atriplex lindleyi**Blackiella inflata* (F.Muell.) Aellen = *Atriplex lindleyi**Blitum cristatum* F.Muell. = *Chenopodium cristatum**Chenolea carnosa* (Moq.) Benth. = *Maireana carnosa**Chenolea enchylaenoides* F.Muell. = *Maireana enchylaenoides**Chenopodium aegyptiacum* Hasselq. = *Suaeda aegyptiaca** *Chenopodium album* L. - LE FR EP NL YP SL KI SE*Chenopodium ambiguum* R.Br. = *Chenopodium glaucum** *Chenopodium ambrosioides* L. var. *ambrosioides* - EP SL*Chenopodium ambrosioides* L. var. *anthelminticum* (L.) A.Gray - SL SE*Chenopodium anidiophyllum* Aellen = *Chenopodium desertorum* ssp. *anidiophyllum**Chenopodium anthelminticum* L. = *Chenopodium ambrosioides* var. *anthelminticum**Chenopodium atriplicinum* F.Muell. = *Scleroblitum atriplicinum**Chenopodium auricomum* Lindley - LE EA MU*Chenopodium australe* R.Br. = *Suaeda australis**Chenopodium carinatum* R.Br. forma *leucocarpum* Aellen =*Chenopodium melanocarpum* forma *leucocarpum**Chenopodium carinatum* sensu J.Black (1924) = *Chenopodium pumilio**Chenopodium cochlearifolium* Aellen = *Chenopodium desertorum* ssp. *microphyllum**Chenopodium cristatum* (F.Muell.) F.Muell. - NW LE NU GT FR EA EP NL MU SL*Chenopodium cristatum* (F.Muell.) F.Muell. var. *melanocarpum* J.Black =*Chenopodium melanocarpum* forma *melanocarpum**Chenopodium curvispicatum* Paul G.Wilson - NW NU GT FR EA EP NL MU*Chenopodium desertorum* (J.Black) J.Black - NW LE NU GT FR EA EP MU YP*Chenopodium desertorum* (J.Black) J.Black ssp. *anidiophyllum* (Aellen) Paul G.Wilson
- NW LE GT FR EA EP*Chenopodium desertorum* (J.Black) J.Black ssp. *desertorum* -

NW LE NU GT FR EA EP NL MU YP SL KI

Chenopodium desertorum (J.Black) J.Black ssp. *microphyllum* Paul G.Wilson -
FR EP NL MU YP SL SE*Chenopodium desertorum* (J.Black) J.Black ssp. *rectum* Paul G.Wilson -
NW EP EA MU*Chenopodium erosum* R.Br. - KI*Chenopodium furfuraceum* Moq. = *Rhagodia candolleana* ssp. *candolleana**Chenopodium gaudichaudianum* (Moq.) Paul G.Wilson - NW NU GT EP MU* *Chenopodium glaucum* L. - MU YP SL KI SE*Chenopodium insulare* J.Black = *Suaeda australis**Chenopodium melanocarpum* (J.Black) J.Blackforma *leucocarpum* (Aellen) Paul G.Wilson - NW*Chenopodium melanocarpum* (J.Black) J.Black forma *melanocarpum* -
NW NU GT FR EA EP MU*Chenopodium microphyllum* F.Muell. var. *desertorum* J.Black =*Chenopodium desertorum* ssp. *microphyllum** *Chenopodium multifidum* L. - EP MU YP SL* *Chenopodium murale* L. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Chenopodium myriocephalum* (Benth.) Aellen = *Dysphania glomulifera* ssp. *glomulifera**Chenopodium nitrariaceum* (F.Muell.) F.Muell. ex Benth. -
NW LE GT FR EA EP NL MU SL SE* *Chenopodium opulifolium* Schrader ex Koch & Ziz - NL SE*Chenopodium polygonoides* (Murr.) Aellen = *Einadia polygonoides**Chenopodium preissii* (Moq.) Diels = *Rhagodia preissii* ssp. *preissii*

91.047 CHENOPODIACEAE (contd)

- Chenopodium probstii* Aellen ex Probst = *Chenopodium album*
Chenopodium pseudomicrophyllum Aellen = *Chenopodium desertorum* ssp. *microphyllum*
Chenopodium pumilio R.Br. - NW LE GT FR EA EP NL MU YP SL KI SE
Chenopodium pumilio R.Br. var. *oblongifolium* J.Black = *Chenopodium pumilio*
Chenopodium rhadinostachyum F.Muell. =
Dysphania rhadinostachya ssp. *rhadinostachya*
Chenopodium scoparia L. = *Kochia scoparia*
Chenopodium triangulare R.Br. var. *angustifolium* Benth. = *Einadia polygonoides*
Chenopodium triangulare R.Br. var. *polygonoides* Murr = *Einadia polygonoides*
Chenopodium truncatum Paul G.Wilson - NW LE GT EA
Chenopodium ulicinum Gand. = *Rhagodia ulicina*
 **Chenopodium vulvaria* L. - SL KI SE
Dissocarpus biflorus F.Muell. var. *biflorus* - LE GT FR EA EP NL MU YP SL
Dissocarpus biflorus F.Muell. var. *cephalocarpus* sensu J.Black (1948) =
Dissocarpus biflorus var. *biflorus*
Dissocarpus biflorus F.Muell. var. *cephalocarpus* (F.Muell.) A.J.Scott - not in S.Aust.
Dissocarpus biflorus F.Muell. var. *villosus* (Ising) A.J.Scott - GT EP
Dissocarpus fontinalis Paul G. Wilson - LE FR
Dissocarpus latifolius (J.Black) Paul G.Wilson - LE GT FR EP MU
Dissocarpus paradoxus (R.Br.) F.Muell. ex Ulbr. var. *latifolius* (J.Black) Ulbr. =
Dissocarpus latifolius
Dissocarpus paradoxus (R.Br.) F.Muell. ex Ulbr. var. *paradoxus* -
 NW LE NU GT FR EA EP NL MU
Duriala villosa (F.Muell.) Ulbr. = *Maireana enchylaenoides*
Dysphania glomulifera (Nees) Paul G.Wilson ssp. *eremaea* Paul G.Wilson -
 NW LE GT FR
Dysphania glomulifera (Nees) Paul G.Wilson ssp. *glomulifera* - FR MU SL KI
Dysphania kalpari Paul G.Wilson - NW LE
Dysphania littoralis sensu J.Black (1948) = *Dysphania glomulifera* ssp. *eremaea*
Dysphania myriocephala Benth. = *Dysphania glomulifera* ssp. *glomulifera*
Dysphania plantaginella F.Muell. - NW LE EA
Dysphania platycarpa Paul G.Wilson - LE GT EA
Dysphania rhadinostachya (F.Muell.) A.J.Scott ssp. *rhadinostachya* - NW
Dysphania simulans F.Muell. & Tate ex Tate - NW LE EA
Echinopsilon brachypterus (F.Muell.) F.Muell. = *Sclerolaena brachyptera*
Echinopsilon carnosus Moq. = *Maireana carnosus*
Einadia nutans (R.Br.) A.J.Scott ssp. *eremaea* Paul G.Wilson - NW LE GT
Einadia nutans (R.Br.) A.J.Scott ssp. *nutans* -
 NW LE GT FR EA EP NL MU YP SL KI SE
Einadia nutans (R.Br.) A.J.Scott ssp. *oxycarpa* (Gauba) Paul G.Wilson - GT FR EA MU
Einadia polygonoides (Murr) Paul G.Wilson - EP SL
Enchylaena tamariscina (Lindley) Druce = *Maireana brevifolia*
Enchylaena tomentosa R.Br. var. *glabra* Benth. - LE
Enchylaena tomentosa R.Br. var. *tomentosa* -
 NW LE NU GT FR EA EP NL MU YP SL KI SE
Enchylaena tomentosa R.Br. var. *villosa* Benth. = *Enchylaena tomentosa* var. *tomentosa*
Eremophea spinosa (Ewart & O.B.Davies) Paul G.Wilson - NW LE
Eriochiton sclerolaenoides (F.Muell.) F.Muell. ex A.J.Scott -
 NW LE NU GT FR EA EP NL MU YP
Halosarcia cupuliformis Paul G.Wilson - LE
Halosarcia flabelliformis Paul G.Wilson - EP NL YP SL
Halosarcia fontinalis Paul G.Wilson - LE FR
Halosarcia halocnemoides (Nees) Paul G.Wilson ssp. *halocnemoides* -
 NW LE NU GT EA YP SL SE
Halosarcia halocnemoides (Nees) Paul G.Wilson ssp. *longispicata* Paul G.Wilson -
 LE GT NL
Halosarcia halocnemoides (Nees) Paul G.Wilson ssp. *tenuis* Paul G.Wilson - LE
Halosarcia indica (Willd.) Paul G.Wilson ssp. *bidens* Paul G.Wilson -
 NW LE GT EA EP MU SL
Halosarcia indica (Willd.) Paul G.Wilson ssp. *leiostachya* (Benth.) Paul G.Wilson -
 NW LE NU GT FR EA EP MU SL SE
Halosarcia lepidosperma Paul G.Wilson - EP YP
Halosarcia lylei (Ewart & Jean White) Paul G.Wilson - NW NU GT EP
Halosarcia nitida Paul G.Wilson - LE GT EA

91.047 CHENOPODIACEAE (contd)

- Halosarcia pergranulata* (J.Black)Paul G.Wilson ssp. *divaricata* Paul G.Wilson -
LE GT EA MU
- Halosarcia pergranulata* (J.Black)Paul G.Wilson ssp. *elongata* Paul G.Wilson - LE
- Halosarcia pergranulata* (J.Black)Paul G.Wilson ssp. *pergranulata* -
LE NU GT EA EP NL MU YP SL KI SE
- Halosarcia pluriflora* Paul G.Wilson - LE EA EP
- Halosarcia pruinosa* (Paulsen)Paul G.Wilson - NW LE NU GT EP NL SL
- Halosarcia pterygosperma* (J.Black)Paul G.Wilson ssp. *pterygosperma* -
LE NU FR EA EP YP
- Halosarcia syncarpa* Paul G.Wilson - EP MU YP SE
- Halosarcia undulata* Paul G.Wilson - LE
- Kentropsis eriacantha* F.Muell. = *Sclerolaena eriacantha*
- Kochia aphylla* R.Br. = *Maireana aphylla*
- Kochia appressa* Benth. = *Maireana appressa*
- Kochia astrotricha* L.Johnson = *Maireana astrotricha*
- Kochia brachyptera* F.Muell. = *Sclerolaena brachyptera*
- Kochia brevifolia* R.Br. = *Maireana brevifolia*
- Kochia cannonii* J.Black = *Maireana cannonii*
- Kochia carnosa* (Moq.)R.Anderson = *Maireana carnosa*
- Kochia ciliata* F.Muell. = *Maireana ciliata*
- Kochia concava* Ising = ?*Maireana eriantha*
- Kochia coronata* J.Black = *Maireana coronata*
- Kochia crassiloba* R.Anderson = *Maireana enchylaenoides*
- Kochia enchylaenoides* (J.Black)J.Black = *Maireana enchylaenoides*
- Kochia eriantha* F.Muell. = *Maireana eriantha*
- Kochia erioclada* (Benth.)Gaub. = *Maireana erioclada*
- Kochia excavata* J.Black = *Maireana excavata*
- Kochia excavata* J.Black var. *trichoptera* J.Black = *Maireana trichoptera*
- Kochia georgei* Diels = *Maireana georgei*
- Kochia humillima* sensu Tate (1890) = *Maireana excavata*
- Kochia integra* Paul G.Wilson = *Maireana integra*
- Kochia lanosa* Lindley = *Maireana lanosa*
- Kochia lobiflora* F.Muell. ex Benth. = *Maireana lobiflora*
- Kochia microcarpa* (Benth.)Paul G.Wilson = *Maireana microcarpa*
- Kochia oppositifolia* F.Muell. = *Maireana oppositifolia*
- Kochia ovata* Ising = *Maireana ovata*
- Kochia pentagona* R.Anderson = *Maireana pentagona*
- Kochia pentatropis* Tate = *Maireana pentatropis*
- Kochia planifolia* F.Muell. = *Maireana planifolia*
- Kochia pyramidata* Benth. = *Maireana pyramidata*
- Kochia radiata* Paul G.Wilson = *Maireana radiata*
- Kochia rohrlachii* Paul G.Wilson = *Maireana rohrlachii*
- Kochia scleroptera* J.Black = *Maireana scleroptera*
- **Kochia scoparia* (L.)Schrader - FR
- Kochia sedifolia* F.Muell. = *Maireana sedifolia*
- Kochia spongiocarpa* F.Muell. = *Maireana spongiocarpa*
- Kochia stelligera* F.Muell. = *Sclerolaena stelligera*
- Kochia suaedifolia* Paul G.Wilson = *Maireana suaedifolia*
- Kochia tamariscina* (Lindley)J.Black = *Maireana brevifolia*
- Kochia tomentosa* F.Muell. = *Maireana appressa*
- Kochia tomentosa* F.Muell. var. *appressa* J.Black = *Maireana appressa*
- Kochia tomentosa* F.Muell. var. *enchylaenoides* J.Black = *Maireana enchylaenoides*
- Kochia tomentosa* F.Muell. var. *humilis* Benth. = *Maireana excavata*
- Kochia tomentosa* F.Muell. var. *platyphylla* Ising = *Maireana planifolia*
- Kochia tomentosa* F.Muell. var. *tenuifolia* F.Muell. = *Maireana decalvans*
- Kochia triptera* Benth. = *Maireana triptera*
- Kochia triptera* Benth. var. *erioclada* Benth. = *Maireana erioclada*
- Kochia villosa* Lindley = *Maireana villosa*
- Maireana aphylla* (R.Br.)Paul G.Wilson - NW LE GT FR EA EP NL MU YP SL
- Maireana appressa* Paul G. Wilson - NW LE NU GT FR EA EP NL MU
- Maireana astrotricha* (L.Johnson)Paul G.Wilson - NW LE GT FR EA EP MU
- Maireana brevifolia* (R.Br.)Paul G.Wilson - NU FR EA EP NL MU YP SL SE
- Maireana campanulata* Paul G.Wilson - NW LE FR EA
- Maireana cannonii* (J.Black)Paul G.Wilson - LE GT EP

91.047 CHENOPODIACEAE (contd)

- Maireana carnos* (Moq.) Paul G. Wilson - LE
Maireana ciliata (F. Muell.) Paul G. Wilson - LE GT FR EP NL MU
Maireana coronata (J. Black) Paul G. Wilson - LE GT FR EA
Maireana decalvans (Gand.) Paul G. Wilson - NL SL
Maireana enchylaenoides (F. Muell.) Paul G. Wilson - FR EP NL MU YP SL KI SE
Maireana eriantha (F. Muell.) Paul G. Wilson - NW LE GT FR EP
Maireana erioclada (Benth.) Paul G. Wilson - NW NU GT FR EA EP NL MU YP SL
Maireana excavata (J. Black) Paul G. Wilson - GT FR EP NL
Maireana georgei (Diels) Paul G. Wilson - NW LE NU GT FR EA EP MU
Maireana integra (Paul G. Wilson) Paul G. Wilson - NW LE NU GT FR EA EP
Maireana lanosa (Lindley) Paul G. Wilson - LE FR
Maireana lobiflora (Benth.) Paul G. Wilson - LE GT FR EA EP NL MU
Maireana luehmanna (F. Muell.) Paul G. Wilson - NW LE
Maireana melanocarpa Paul G. Wilson - LE GT FR
Maireana microcarpa (Benth.) Paul G. Wilson - LE GT FR EA EP
Maireana oppositifolia (F. Muell.) Paul G. Wilson -
 NW NU GT EA EP NL MU YP SL KI SE
Maireana ovata (Ising) Paul G. Wilson - LE FR MU
Maireana pentagona (R. Anderson) Paul G. Wilson - LE MU
Maireana pentatropis (Tate) Paul G. Wilson - NW LE NU GT FR EA EP NL MU YP
Maireana planifolia (F. Muell.) Paul G. Wilson - NW LE GT FR
Maireana pyramidata (Benth.) Paul G. Wilson - NW LE GT FR EA EP NL MU YP SL
Maireana radiata (Paul G. Wilson) Paul G. Wilson - NU GT FR EP NL MU YP SL
Maireana rohrlachii (Paul G. Wilson) Paul G. Wilson - FR EP NL MU YP SL
Maireana schistocarpa Paul G. Wilson - GT EP
Maireana sclerolaenoides (F. Muell.) Paul G. Wilson = *Eriochiton sclerolaenoides*
Maireana scleroptera (J. Black) Paul G. Wilson - NW LE EP MU
Maireana sedifolia (F. Muell.) Paul G. Wilson - NW NU GT FR EA EP NL MU
Maireana spongiocarpa (F. Muell.) Paul G. Wilson - LE GT FR EA EP MU
Maireana suaedifolia (Paul G. Wilson) Paul G. Wilson - EP MU SL
Maireana tomentosa Moq. ssp. *urceolata* Paul G. Wilson - LE GT FR
Maireana trichoptera (J. Black) Paul G. Wilson - NW LE NU GT FR EA EP NL MU YP SL
Maireana triptera (Benth.) Paul G. Wilson - NW LE NU GT FR EA EP MU
Maireana turbinata Paul G. Wilson - NW LE NU GT FR EA EP NL MU
Maireana villosa (Lindley) P.G. Wilson - NW LE GT FR
Malacocera albolanata (Ising) Chinn. - LE GT EA
Malacocera biflora Ising - LE
Malacocera gracilis Chinn. - GT EA EP
Malacocera tricornis (Benth.) R. Anderson - LE GT FR EA EP MU
** Monolepis spathulata* A. Gray - ?LE
Morrisiella morrisii (R. Anderson) Aellen = *Atriplex morrisii*
Neobassia proceriflora (F. Muell.) A.J. Scott - NW LE GT FR
Osteocarpum acropterum (F. Muell. & Tate) Volkens var. *acropterum* -
 NW LE NU GT FR EA EP MU
Osteocarpum acropterum (F. Muell. & Tate) Volkens
 var. *diminutum* (J. Black) Paul G. Wilson - LE GT EA MU
Osteocarpum dipterocarpum (F. Muell.) Volkens - NW LE GT FR EA EP
Osteocarpum pentapterum (F. Muell. & Tate) Volkens - LE EP
Osteocarpum salsuginosum F. Muell. - NU GT FR EP NL MU
Pachycornia robusta (F. Muell.) Hook.f. = *Pachycornia triandra*
Pachycornia tenuis (Benth.) J. Black = *Sclerostegia tenuis*
Pachycornia triandra (F. Muell.) J. Black - EP MU
** Ranunculus scleratus* L. - MU
Rhagodia baccata (Labill.) Moq. var. *linearis* sensu J. Black (1948) = *Rhagodia crassifolia*
Rhagodia baccata (Labill.) Moq. var. *parvifolia* Moq. =
Rhagodia candolleana ssp. *candolleana*
Rhagodia baccata sensu J. Black (1948) = *Rhagodia candolleana* ssp. *candolleana*
Rhagodia candolleana Moq. ssp. *argentea* Paul G. Wilson - NW NU
Rhagodia candolleana Moq. ssp. *candolleana* - EP NL MU YP SL KI SE
Rhagodia crassifolia R.Br. - NU GT EP NL MU YP SL KI SE
Rhagodia drummondii Moq. - NW
Rhagodia eremaea Paul G. Wilson - NW
Rhagodia gaudichaudiana Moq. = *Chenopodium gaudichaudianum*
Rhagodia nitrariacea F. Muell. = *Chenopodium nitrariaceum*

91.047 CHENOPODIACEAE (contd)*Rhagodia nutans* R.Br. = *Einadia nutans* ssp. *nutans**Rhagodia parabolica* R.Br. - NW NU GT FR EA EP NL MU YP SL SE*Rhagodia preissii* Moq. ssp. *preissii* - NE NU GT EP NL M U YP ?KI*Rhagodia spinescens* R.Br. - NW LE NU GT FR EA EP NL MU*Rhagodia spinescens* R.Br. var. *deltophylla* F.Muell. = *Rhagodia spinescens**Rhagodia spinescens* R.Br. var. *deltophylla* sensu J.Black (1948), partly =*Chenopodium curvispicatum**Rhagodia ulicina* (Gand.)Paul G.Wilson - LE GT FR EA EP MU*Salicornia arbuscula* R.Br. = *Sclerostegia arbuscula**Salicornia australis* Banks & Sol. = *Sarcocornia quinqueflora**Salicornia blackiana* Ulbr. = *Sarcocornia blackiana**Salicornia leiostachya* Benth. = *Halosarcia indica* ssp. *leiostachya**Salicornia pachystachya* J.Black = *Sarcocornia blackiana**Salicornia quinqueflora* Bunge ex Ung.-Sternb. = *Sarcocornia quinqueflora**Salicornia robusta* F.Muell. = *Pachycornia triandra**Salicornia tenuis* Benth., partly = *Sclerostegia tenuis**Salsola australis* R.Br. = *Salsola kali**Salsola australis* R.Br. var. *strobilifera* (Benth.)Domin = *Salsola kali**Salsola kali* L. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Salsola kali* L. ssp. *austroafricana* Aellen = ?*Salsola kali**Salsola kali* L. var. *leptophylla* Benth. = *Salsola kali**Salsola kali* L. var. *strobilifera* Benth. = *Salsola kali**Sarcocornia blackiana* (Ulbr.)A.J.Scott - LE EP YP SL KI SE*Sarcocornia quinqueflora* (Bunge ex Ung.-Sternb.)A.J.Scott - EP NL MU YP SL KI SE*Scleroblitum atriplicinum* (F.Muell.)Ulbr. - LE FR EA MU SL*Sclerochlamys brachyptera* F.Muell. = *Sclerolaena brachyptera**Sclerolaena aellenii* (Ising)A.J.Scott - hybrid*Sclerolaena albolanata* (Ising)A.J.Scott = *Malacocera albolanata**Sclerolaena andersonii* (Ising)A.J.Scott = *Sclerolaena glabra**Sclerolaena articulata* (J.Black)A.J.Scott - LE FR*Sclerolaena bicornis* Lindley - NW LE GT FR EA*Sclerolaena bicuspis* (F.Muell.)Domin - LE FR EP*Sclerolaena biflora* R.Br. = *Dissocarpus biflorus* var. *biflorus**Sclerolaena biflora* R.Br. var. *cephalocarpa* F.Muell. =*Dissocarpus biflorus* var. *cephalocarpus**Sclerolaena birchii* (F.Muell.)Domin - NW FR NL MU*Sclerolaena blackiana* (Ising)A.J.Scott - LE*Sclerolaena brachyptera* (F.Muell.)S.W.L.Jacobs - LE NU GT FR EA EP NL MU*Sclerolaena brevifolia* (Ising)A.J.Scott - NU GT EP NL MU YP*Sclerolaena calcarata* (Ising)A.J.Scott - LE*Sclerolaena caput-casuarii* (J.H.Willis)A.J.Scott - hybrid*Sclerolaena clelandii* (Ising)A.J.Scott - NW LE*Sclerolaena constricta* (Ising)A.J.Scott - LE GT FR EA*Sclerolaena convexula* (R.Anderson)A.J.Scott - NW LE FR EA*Sclerolaena cornishiana* (F.Muell.)A.J.Scott - NW LE*Sclerolaena costata* (R.Anderson)A.J.Scott - NW LE FR MU*Sclerolaena cristata* (Ising)A.J.Scott - hybrid*Sclerolaena cuneata* Paul G.Wilson - LE GT FR EA EP*Sclerolaena decurrens* (J.Black)A.J.Scott - NW LE GT FR EA EP MU*Sclerolaena deserticola* Paul G.Wilson - NW*Sclerolaena diacantha* (Nees)Benth. - NW LE NU GT FR EA EP NL MU YP SL*Sclerolaena diacantha* (Nees)Benth. var. *longispina* Benth., partly =*Sclerolaena patenticuspis**Sclerolaena divaricata* (R.Br.)Smith - NW LE GT FR EA EP NL MU*Sclerolaena eichleri* (Ising)A.J.Scott = *Sclerolaena holtiana**Sclerolaena eriacantha* (F.Muell.)Ulbr. - NW LE NU GT FR EA EP*Sclerolaena fontinalis* Paul G.Wilson - LE*Sclerolaena glabra* (F.Muell.)Domin - LE*Sclerolaena holtiana* (Ising)A.J.Scott - LE GT*Sclerolaena intricata* (R.Anderson)A.J.Scott - LE GT FR EA EP*Sclerolaena johnsonii* (Ising)A.J.Scott - NW LE*Sclerolaena lanata* (Ising)A.J.Scott - hybrid*Sclerolaena lanicuspis* (F.Muell.)Benth. - NW LE GT FR EA EP*Sclerolaena limbata* (J.Black)Ulbr. - LE NU GT FR EA MU YP

91.047 CHENOPODIACEAE (contd)

- Sclerolaena longicuspis* (F.Muell.)A.J.Scott - LE GT FR EA
Sclerolaena muricata (Moq.)Domin var. *muricata* - NW LE FR MU SL
Sclerolaena muricata (Moq.)Domin var. *semiglabra* (Ising)A.J.Scott - LE
Sclerolaena muricata (Moq.)Domin var. *villosa* (Benth.)Ulbr. - NL MU SL SE
Sclerolaena murrayae (Ising)A.J.Scott - hybrid
Sclerolaena nitida (Ising)A.J.Scott - hybrid
Sclerolaena obliquicuspis (R.Anderson)Ulbr. - NW LE NU GT FR EA EP NL MU YP
Sclerolaena oppositiscuspis (Ising)A.J.Scott - hybrid
Sclerolaena paradoxa R.Br. = *Dissocarpus paradoxus*
Sclerolaena paralleliscuspis (R.Anderson)A.J.Scott - NW LE GT FR
Sclerolaena parviflora (R.Anderson)A.J.Scott - NW LE NU GT FR EP NL MU
Sclerolaena patentiscuspis (R.Anderson)Ulbr. - NW LE NU GT FR EA EP NL MU YP
Sclerolaena spinosa (Ewart & O.B.Davies)A.J.Scott = *Eremophea spinosa*
Sclerolaena stelligera (F.Muell.)S.W.L.Jacobs - MU
Sclerolaena symoniana (Ising)A.J.Scott - NW
Sclerolaena tatei (F.Muell.)A.J.Scott - LE GT FR EA
Sclerolaena tricuspis (F.Muell.)Ulbr. - LE FR MU
Sclerolaena uniflora R.Br. - NW LE NU GT FR EA EP NL MU YP SL
Sclerolaena ventricosa (J.Black)A.J.Scott - LE GT FR EA EP
Sclerolaena wilsonii (Ising)A.J.Scott = *Sclerolaena holtiana*
Sclerostegia arbuscula (R.Br.)Paul G.Wilson - EP MU YP SL KI SE
Sclerostegia disarticulata Paul G.Wilson - NW LE NU GT FR EA EP
Sclerostegia medullosa Paul G.Wilson - LE
Sclerostegia tenuis (Benth.)Paul G.Wilson - NW LE NU GT FR EA EP MU YP SL KI
Senniella spongiosa (F.Muell.)Aellen = *Atriplex spongiosa*
Senniella spongiosa (F.Muell.)Aellen var. *amoena* Aellen = *Atriplex spongiosa*
Senniella spongiosa (F.Muell.)Aellen var. *holocarpa* (F.Muell.)Aellen = *Atriplex holocarpa*
Senniella spongiosa (F.Muell.)Aellen var. *xylocarpa* Aellen = *Atriplex holocarpa*
Stelligera endecaspinis A.J.Scott = *Sclerolaena stelligera*
**Suaeda aegyptiaca* (Hasslq.)Zoh. - EP NL MU
Suaeda australis (R.Br.)Moq. - EP NL MU YP SL KI SE
Suaeda baccata Forsskal ex J.Gmelin = *Suaeda aegyptiaca*
**Suaeda baccifera* Pallas - SL
Suaeda maritima (L.)Dumort. var. *australis* (R.Br.)Domin = *Suaeda australis*
Suaeda tamariscina Lindley = *Maireana brevifolia*
Tecticornia verrucosa Paul G. Wilson - NW
Theleophyton billardieri (Moq.)Moq. - ?not in S.Aust.
Threlkeldia diffusa R.Br. - NU EP NL MU YP SL KI SE
Threlkeldia inchoata (J.Black)J.Black - LE
Threlkeldia proceriflora F.Muell. = *Neobassia proceriflora*
Threlkeldia salsuginosa (F.Muell.)Benth. = *Osteocarpum salsuginosum*

91.049 AMARANTHACEAE

- **Aerva javanica* (Burman f.)A.L.Juss. ex Schultes - LE
Alternanthera angustifolia R.Br. - LE
Alternanthera decipiens Benth. = *Ptilotus decipiens*
Alternanthera denticulata R.Br. - LE GT FR EA NL MU SL KI SE
Alternanthera nana R.Br. - NW LE FR
Alternanthera nodiflora R.Br. - LE GT ?FR ?EA MU
**Alternanthera pungens* Kunth - EP NL MU YP SL SE
Alternanthera triandra sensu F.Muell. & Tate (1896) = *Alternanthera nodiflora*
**Amaranthus albus* L. - NL MU SL SE
**Amaranthus caudatus* L. - YP SL
**Amaranthus cruentus* L. - SL
**Amaranthus deflexus* L. - SL
Amaranthus gracilis Desf. = *Amaranthus viridis*
**Amaranthus graecizans* L. ssp. *sylvestris* (Villars)Brenan - YP SL
Amaranthus grandiflorus (J.Black)J.Black - NW LE GT FR EA MU YP
**Amaranthus hybridus* L. - SL SE
Amaranthus interruptus R.Br. - NW LE FR
Amaranthus macrocarpus Benth. - LE
Amaranthus mitchellii Benth. - NW LE GT FR EA
Amaranthus mitchellii Benth. var. *grandiflorus* J.Black = *Amaranthus grandiflorus*
**Amaranthus muricatus* (Moq.)Hieron. - EP NL MU YP SL

91.049 AMARANTHACEAE (contd)

- **Amaranthus paniculatus* L. - YP
Amaranthus patulus Bertol. = *Amaranthus hybridus*
 **Amaranthus powellii* S.Watson - SL SE
 **Amaranthus retroflexus* L. - NL YP SL SE
Amaranthus sylvestris Villars = *Amaranthus graecizans* ssp. *sylvestris*
 **Amaranthus viridis* L. - NW FR EP NL MU YP SL
Brayulinea densa (Schultes) Small = *Guilleminea densa*
Euxolus mitchellii (Benth.) F.Muell. = *Amaranthus mitchellii*
Euxolus muricatus Moq. = *Amaranthus muricatus*
Gomotriche tomentosa Turcz. = *Ptilotus obovatus* var. *obovatus*
Gomphrena brownii Moq. = *Gomphrena lanata*
Gomphrena lanata R.Br. - ?LE
Goniotriche tomentosa Turcz. = *Ptilotus obovatus* var. *obovatus*
 **Guilleminea densa* (Schultes) Moq. - ?MU
Hemichroa diandra R.Br. - NW LE NU GT EP YP SL KI
Hemichroa mesembryanthema F.Muell. - LE
Hemichroa pentandra R.Br. - EP MU YP SL KI SE
Hemisteirus psilotrichoides F.Muell. = *Ptilotus gaudichaudii* var. *gaudichaudii*
Illecebrum densum Willd. ex Schultes = *Guilleminea densa*
Iresine javanica Burman f. = *Aerva javanica*
Polycnemum diandrum (R.Br.) F.Muell. = *Hemichroa diandra*
Polycnemum pentandrum (R.Br.) F.Muell. = *Hemichroa pentandra*
Ptilotus alopecuroides (Lindley) F.Muell. = *Ptilotus polystachyus* var. *polystachyus*
Ptilotus alopecuroides (Lindley) F.Muell. var. *rubriflorum* (J.Black) J.Black =
Ptilotus polystachyus var. *polystachyus* forma *rubriflorum* (J.Black) Benl
Ptilotus aristatus Benl var. *aristatus* - LE
Ptilotus aristatus Benl var. *eichlerianus* (Benl) Benl & H.Eichler - LE
Ptilotus arthrolasius F.Muell. - NW
Ptilotus astrolasius F.Muell. var. *astrolasius* - ?EA
Ptilotus atriplicifolius (Cunn. ex Moq.) Benl var. *atriplicifolius* -
 NW LE NU GT FR EP NL
Ptilotus 'Cordillo Downs' - LE
Ptilotus barkeri Benl - LE
Ptilotus beckeri F.Muell. = *Ptilotus beckerianus*
Ptilotus beckerianus (F.Muell.) F.Muell. ex J.Black - EP KI
Ptilotus blackii Benl - LE
Ptilotus chlippendalei Benl - NW
Ptilotus corymbosus Gaudich. ex Ewart & O.B.Davies =
Ptilotus gaudichaudii var. *gaudichaudii*
Ptilotus decipiens (Benth.) C.Gardner - NW LE GT FR
Ptilotus eichlerianus Benl = *Ptilotus aristatus* var. *eichlerianus*
Ptilotus erubescens Schldl. - NL MU SL
Ptilotus exaltatus Nees var. *exaltatus* - NW LE NU GT FR EA EP NL SL KI SE
Ptilotus exaltatus Nees var. *semilanatus* (Lindley) Maiden & Betche - SE
Ptilotus exaltatus Nees. var. *pallidus* Benl - FR
Ptilotus forrestii F.Muell. = *Ptilotus arthrolasius*
Ptilotus fraseri (Cunn. ex. Moq.) F.Muell. var. *schwarzii* F.Muell. = *Ptilotus schwartzii*
Ptilotus gaudichaudii (Steudel) J.Black var. *gaudichaudii* - NW LE NU GT EP
Ptilotus gaudichaudii (Steudel) J.Black var. *parviflorus* (Benth.) Benl - EA
Ptilotus gomphrenoides (Moq.) F.Muell. - not in S.Aust.
Ptilotus helipteroides (F.Muell.) F.Muell. var. *helipteroides* - NW LE
Ptilotus helipteroides (F.Muell.) F.Muell. var. *minor* (J.Black) H.Eichler - LE
Ptilotus helmsii F.Muell. & Tate ex Ewart & Jean White =
Ptilotus incanus var. *parviflorus*
Ptilotus hemisteirus F.Muell. = *Ptilotus gaudichaudii* var. *gaudichaudii*
Ptilotus hoodii F.Muell. = *Ptilotus decipiens*
Ptilotus incanus (R.Br.) Poiret var. *incanus* - NW
Ptilotus incanus (R.Br.) Poiret var. *parviflorus* (Ewart & Jean White) Benl - NW
Ptilotus latifolius R.Br. var. *latifolius* - LE
Ptilotus leucocoma (Moq.) F.Muell. - not in S.Aust.
Ptilotus lindleyi F.Muell. = *Ptilotus obovatus*
Ptilotus macrocephalus (R.Br.) Poiret - NW LE SL SE
Ptilotus murrayi F.Muell. var. *major* J.Black - LE
Ptilotus murrayi F.Muell. var. *murrayi* - LE

91.049 AMARANTHACEAE (contd)

- Ptilotus nobilis* (Lindley) F.Muell. var. *angustifolius* Benl - FR ?EP ?NL
Ptilotus nobilis (Lindley) F.Muell. var. *nobilis* - NW LE NU GT FR EA EP NL MU SL
Ptilotus oblongifolius Gand. = *Ptilotus atriplicifolius* var. *atriplicifolius*
Ptilotus obovatus (Gaudich.) F.Muell. var. *grandiflorus* (Benth.) Ewart & O.B.Davies =
Ptilotus atriplicifolius var. *atriplicifolius*
Ptilotus obovatus (Gaudich.) F.Muell. var. *griseus* Benl - NW
Ptilotus obovatus (Gaudich.) F.Muell. var. *obovatus* -
 NW LE NU GT FR EA EP NL MU YP
Ptilotus pachocephalus (Moq.) F.Muell. = *Ptilotus macrocephalus*
Ptilotus parvifolius (F.Muell.) F.Muell. var. *laetus* Benl - GT FR
Ptilotus parvifolius (F.Muell.) F.Muell. var. *parvifolius* - NW LE
Ptilotus polystachyus (Gaudich.) F.Muell. var. *polystachyus* -
 NW LE NU GT FR EA EP NL MU SL
Ptilotus polystachyus (Gaudich.) F.Muell. var. *polystachyus*
 forma *polystachyus* - distribution not determined
Ptilotus polystachyus (Gaudich.) F.Muell. var. *polystachyus*
 forma *rubriflorus* (J.Black) Benl - distribution not determined
Ptilotus polystachyus (Gaudich.) F.Muell. var. *pullenii* (Benl) Benl - ?NW
Ptilotus robynsianus Benl - FR
Ptilotus schwartzii F.Muell. ex Tate var. *schwartzii* forma *schwartzii* - NW
Ptilotus semilanatus (Lindley) F.Muell. ex J.Black = *Ptilotus exaltatus* var. *semilanatus*
Ptilotus seminudus (J.Black) J.Black - EP MU YP
Ptilotus spathulatus (R.Br.) Poiret forma *angustatus* Benl - EP
Ptilotus spathulatus (R.Br.) Poiret forma *spathulatus* - FR EP NL MU YP SL KI SE
Ptilotus symonii Benl - NU
Trichinium alopecuroideum Lindley = *Ptilotus polystachyus* var. *polystachyus*
Trichinium alopecuroideum Lindley var. *rubriflorum* J.Black =
Ptilotus polystachyus var. *polystachyus* forma *rubriflorus*
Trichinium angustifolium Moq. = *Ptilotus macrocephalus*
Trichinium arthrolasium (F.Muell.) F.Muell. ex Benth. = *Ptilotus arthrolasium*
Trichinium astrolasium (F.Muell.) F.Muell. ex Benth. = *Ptilotus astrolasium* var. *astrolasium*
Trichinium atriplicifolium Cunn. ex Moq. = *Ptilotus atriplicifolius* var. *atriplicifolius*
Trichinium beckerianum F.Muell. = *Ptilotus beckerianus*
Trichinium brachytrichum F.Muell. = *Ptilotus helipteroides* var. *helipteroides*
Trichinium burtonii Bailey = *Ptilotus exaltatus* var. *exaltatus*
Trichinium candicans Nees = *Ptilotus polystachyus* var. *polystachyus*
Trichinium corymbosum Gaudich. ex Ewart & O.B.Davies =
Ptilotus gaudichaudii var. *gaudichaudii*
Trichinium corymbosum Gaudich. ex Ewart & O.B.Davies var. *parviflorum* Benth. =
Ptilotus gaudichaudii var. *parviflorus*
Trichinium densum Cunn. ex Moq. = *Ptilotus nobilis* var. *nobilis*
Trichinium cremita S.Moore = *Ptilotus gaudichaudii* var. *parviflorus*
Trichinium erubescens (Schldl.) Moq. = *Ptilotus erubescens*
Trichinium exaltatum (Nees) Benth. = *Ptilotus exaltatus* var. *exaltatus*
Trichinium forrestii (F.Muell.) C.Gardner = *Ptilotus arthrolasium*
Trichinium fraseri Cunn. ex Moq. var. *schwartzii* F.Muell. = *Ptilotus schwartzii*
Trichinium fusiforme Lindley = *Ptilotus macrocephalus*
Trichinium gaudichaudii Steudel = *Ptilotus gaudichaudii* var. *gaudichaudii*
Trichinium gnaphalodes Cunn. ex Moq. = *Ptilotus incanus* var. *incanus*
Trichinium helipteroides F.Muell. = *Ptilotus helipteroides* var. *helipteroides*
Trichinium helipteroides F.Muell. var. *minor* J.Black = *Ptilotus helipteroides* var. *minor*
Trichinium incanum R.Br. = *Ptilotus incanus* var. *incanus*
Trichinium incanum R.Br. var. *intermedium* Ewart & Jean White =
Ptilotus atriplicifolius var. *atriplicifolius*
Trichinium incanum R.Br. var. *parviflorum* Ewart & Jean White =
Ptilotus incanus var. *parviflorus*
Trichinium lanatum Lindley = *Ptilotus obovatus* var. *obovatus*
Trichinium latifolium R.Br. ex Ewart & O.B.Davies = *Ptilotus latifolius* var. *latifolius*
Trichinium leucocoma Moq. = *Ptilotus leucocoma*
Trichinium linifolium Cunn. ex Moq. = *Ptilotus erubescens*
Trichinium macrocephalum Moq. = *Ptilotus exaltatus* var. *exaltatus*
Trichinium macrocephalum R.Br. = *Ptilotus macrocephalus*
Trichinium mucronatum Nees = *Ptilotus spathulatus* forma *spathulatus*
Trichinium nervosum Bailey = *Ptilotus exaltatus* var. *exaltatus*

91.049 AMARANTHACEAE (contd)

- Trichinium nobile* Lindley = *Ptilotus nobilis* var. *nobilis*
Trichinium obovatum Gaudich. = *Ptilotus obovatus* var. *obovatus*
Trichinium obovatum Gaudich. var. *grandiflorum* Benth. =
Ptilotus atriplicifolius var. *atriplicifolius*
Trichinium pachocephalum Moq. = *Ptilotus macrocephalus*
Trichinium pallidum Moq. = *Ptilotus polystachyus* var. *polystachyus*
Trichinium parvifolium F.Muell. = *Ptilotus parvifolius* var. *laetus*
Trichinium polystachyum Gaudich. = *Ptilotus polystachyus* var. *polystachyus*
Trichinium preissii Nees = *Ptilotus polystachyus* var. *polystachyus*
Trichinium pulchellum Cunn. ex Moq. = *Ptilotus exaltatus* var. *semilanatus*
Trichinium schwartzii (F.Muell. ex Tate)Farmer = *Ptilotus schwartzii*
Trichinium semilanatum Lindley = *Ptilotus exaltatus* var. *semilanatus*
Trichinium seminudum J.Black = *Ptilotus seminudus*
Trichinium sessilifolium Lindley = *Ptilotus obovatus* var. *obovatus*
Trichinium setigerum Cunn. ex Moq. = *Ptilotus exaltatus* var. *semilanatus*
Trichinium spathulatum R.Br. = *Ptilotus spathulatus* forma *spathulatus*
Trichinium variabile F.Muell. = *Ptilotus obovatus* var. *obovatus*
Trichinium whitei J.Black = *Ptilotus parvifolius* var. *parvifolius*

91.051 CACTACEAE

- Austrocylindropuntia cylindrica* (Lam.)Backeb. = *Opuntia cylindrica*
Austrocylindropuntia pachypus (Schumann)Backeb. = *Opuntia pachypus*
Austrocylindropuntia subulata (Muehlenpf.)Backeb. = *Opuntia subulata*
Cactus cylindricus Lam. = *Opuntia cylindrica*
Cactus ficus-indica L. = *Opuntia ficus-indica*
Cactus microdasys Lehm. = *Opuntia microdasys*
Cactus monacanthus Willd. = *Opuntia vulgaris*
Cactus strictus Haw. = *Opuntia stricta*
Cactus tunicatus Lehm. = *Opuntia tunicata*
Cereus imbricatus Haw. = *Opuntia imbricata*
Cylindropuntia imbricata (Haw.)F.Knuth = *Opuntia imbricata*
Cylindropuntia pachypus (Schumann)Backeb. = *Opuntia pachypus*
Cylindropuntia tunicata (Lehm.)F.Knuth = *Opuntia tunicata*
Opuntia arborescens Engelm. = *Opuntia imbricata*
**Opuntia cylindrica* (Lam.)DC. - FR ?NL MU ?SL
Opuntia decipiens DC. = *Opuntia imbricata*
Opuntia discata Griffiths = *Opuntia phaeacantha* var. *discata*
**Opuntia elatior* Miller - MU
Opuntia engelmannii Hort. = *Opuntia phaeacantha* var. *discata*
Opuntia engelmannii Salm-Dyck = *Opuntia ficus-indica*
**Opuntia erinacea* Engelm. & Bigel. var. *utahensis* (Engelm.)L.Benson - MU
**Opuntia ficus-indica* (L.)Miller - FR EP NL MU
**Opuntia imbricata* (Haw.)DC. - FR MU EP
Opuntia inermis DC. = *Opuntia stricta*
**Opuntia leptocaulis* DC. - ?MU
**Opuntia leucotricha* DC. - not in S.Aust.
**Opuntia lindheimeri* Engelm. var. *lindheimeri* - ?FR MU
**Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths)L.Benson - MU
Opuntia linguiformis Griffiths = *Opuntia lindheimeri* var. *linguiformis*
**Opuntia lubrica* Griffiths - ?FR
Opuntia megacantha Salm-Dyck = *Opuntia ficus-indica*
**Opuntia microdasys* (Lehm.)Pfeiff. - MU
Opuntia monacantha (Willd.)Haw. = *Opuntia vulgaris*
**Opuntia pachypus* Schumann - ?not in S.Aust.
**Opuntia paraguayensis* Schumann - MU
**Opuntia phaeacantha* Engelm. var. *discata* (Griffiths)L.Benson & Walkington - FR
Opuntia rhodantha Schuman = *Opuntia erinacea* var. *utahensis*
**Opuntia robusta* H.L.Wendl. - MU YP
Opuntia sp. sensu Telford (1984) = *Opuntia* ?*lubrica*
**Opuntia* sp.A. - MU
**Opuntia* sp.B. - MU
**Opuntia* sp.C. - SL
**Opuntia stricta* (Haw.)Haw. - NL MU SL
**Opuntia subulata* (Muehlenpf.)Engelm. - NL MU

91.051 CACTACEAE (contd)

- **Opuntia tomentosa* Salm-Dyck - MU
- **Opuntia tunicata* (Lehm.) Link & Otto - MU
- Opuntia utahensis* Engelm. = *Opuntia erinacea* var. *utahensis*
- **Opuntia vulgaris* Miller - ?FR MU SL
- Peireskia subulata* Muehlenpf. = *Opuntia subulata*
- Pereskia subulata* Muehlenpf. = *Opuntia subulata*

91.072 LAURACEAE

- Cassytha dispar* Schldl. = *Cassytha glabella* forma *dispar*
- Cassytha glabella* R.Br. forma *dispar* (Schldl.) J. Weber - EP NL MU YP SL KI SE
- Cassytha melantha* R.Br. - NU GT EP NL MU YP SL KI SE
- Cassytha peninsularis* J. Weber var. *flindersii* J. Weber - FR
- Cassytha peninsularis* J. Weber var. *peninsularis* - EP YP KI
- Cassytha piligera* Schldl. = *Cassytha pubescens*
- Cassytha pubescens* R.Br. - EP NL MU SL KI SE
- Cassytha tepperiana* Ludw. ex Tepper = *Cassytha pubescens*
- **Cinnamomum camphora* (L.) T. Nees & Eberm. - ?SL
- Laurus camphora* L. = *Cinnamomum camphora*

91.080 RANUNCULACEAE

- Adonis autumnalis* sensu J. Black (1948) = *Adonis microcarpa*
- **Adonis microcarpa* DC. - FR EP NL MU YP SL SE
- **Batrachium trichophyllum* (Chaix) Bosch - MU SL KI SE
- Clematis aristata* R.Br. ex DC. - ?SE
- **Clematis flammula* L. - SL
- Clematis microphylla* DC. - FR EA EP NL MU YP SL KI SE
- **Clematis vitalba* L. - SL
- **Consolida ajacis* (L.) Schur - not in S. Aust.
- **Consolida ambigua* (L.) P. Ball & Heyw. - EP
- Delphinium ajacis* L. = *Consolida ajacis*
- Delphinium ajacis* sensu J. Black (1948) = *Consolida ambigua*
- Delphinium ambiguum* L. = *Consolida ambigua*
- Myosurus australis* F. Muell. = *Myosurus minimus* var. *australis*
- **Myosurus minimus* L. var. *australis* (F. Muell.) Huth - LE FR EA EP MU
- Ranunculus amphitrichus* Col. - FR NL MU SL KI SE
- Ranunculus aquatilis* sensu J. Black (1948) = *Batrachium trichophyllum*
- Ranunculus glabrifolius* Hook. - SL SE
- Ranunculus hamatosetosus* H. Eichler - FR EA EP NL SL
- Ranunculus inundatus* R.Br. ex DC. - SL SE
- Ranunculus lappaceus* Smith - FR EP NL SL SE
- **Ranunculus muricatus* L. - FR EP NL MU SL SE
- **Ranunculus ophioglossifolius* Villars - SE
- Ranunculus pachycarpus* B. Briggs - FR NL MU SL SE
- Ranunculus papulentus* Melville - SE
- Ranunculus parviflorus* L. - SL
- Ranunculus parviflorus* L. var. *glabrescens* J. Black =
- Ranunculus pentandrus* var. *platycarpus*
- Ranunculus pentandrus* J. Black var. *glabrescens* (J. Black) Melville =
- Ranunculus pentandrus* var. *platycarpus*
- Ranunculus pentandrus* J. Black var. *pentandrus* - LE
- Ranunculus pentandrus* J. Black var. *platycarpus* (F. Muell.) H. Eichler -
- LE GT FR EA EP MU
- Ranunculus pilulifer* Hook. = *Ranunculus sessiliflorus* var. *pilulifer*
- Ranunculus pumilio* R.Br. ex DC. var. *politus* Melville - EA SE
- Ranunculus pumilio* R.Br. ex DC. var. *pumilio* - LE EA MU YP SL KI SE
- **Ranunculus repens* L. - NL SL
- Ranunculus rivularis* Banks & Sol. ex DC. = *Ranunculus amphitrichus*
- Ranunculus robertsonii* Benth. - SE
- **Ranunculus sardous* Crantz - SL
- **Ranunculus scleratus* L. - MU
- **Ranunculus scleratus* L. - MU
- Ranunculus sessiliflorus* R.Br. ex DC. var. *pilulifer* (Hook.) Melville - MU YP SL SE
- Ranunculus sessiliflorus* R.Br. ex DC. var. *platycarpus* F. Muell. =
- Ranunculus pentandrus* var. *platycarpus*

91.080 RANUNCULACEAE (contd)*Ranunculus sessiliflorus* R.Br. ex DC. var. *sessiliflorus* -

NW LE FR EP NL MU YP SL KI SE

Ranunculus trachycarpus sensu J.Black (1948) = *Ranunculus trilobus**Ranunculus trichophyllus* Chaix = *Batrachium trichophyllum***Ranunculus trilobus* Desf. - EP MU SL SE**91.091 NYMPHAEACEAE****Nymphaea alba* L. - ?MU SL**91.096 CERATOPHYLLACEAE***Ceratophyllum demersum* L. - MU SL**91.105 DILLENIACEAE***Hibbertia acicularis* (Labill.)F.Muell. - KI*Hibbertia acicularis* (Labill.)F.Muell. var. *sessiliflora* J.Black = *Hibbertia exutiacies**Hibbertia acicularis* sensu J.Black (1952) = *Hibbertia exutiacies**Hibbertia aspera* DC. - not in S.Aust.*Hibbertia aspera* sensu Jessop (1986), partly = *Hibbertia empetrifolia**Hibbertia aspera* sensu Jessop (1986), partly = *Hibbertia* sp. A*Hibbertia aspera* sensu Jessop (1986), partly = *Hibbertia* sp. B*Hibbertia australis* Wakef. = *Hibbertia stricta**Hibbertia billardieri* F.Muell.var. *parviflora* (R.Br. ex DC.)Benth., partly = *Hibbertia empetrifolia**Hibbertia billardieri* F.Muell. var. *parviflora* (R.Br. ex DC.)Benth., partly = *Hibbertia* sp. A*Hibbertia billardieri* F.Muell. var. *parviflora* (R.Br. ex DC.)Benth., partly = *Hibbertia* sp. B*Hibbertia billardieri* F.Muell. var. *parviflora* sensu J.Black (1952) = *Hibbertia* sp. B*Hibbertia billardieri* sensu J.Black (1952), partly = *Hibbertia empetrifolia**Hibbertia billardieri* sensu J.Black (1952), partly = *Hibbertia* sp. A*Hibbertia billardieri* sensu J.Black (1952), partly = *Hibbertia* sp. B*Hibbertia crispula* J.Black - NU GT*Hibbertia densiflora* sensu F.Muell. (1862) = *Hibbertia sericea* var. *sericea**Hibbertia empetrifolia* (DC.)Hoogl. - YP SL KI SE*Hibbertia exutiacies* Wakef. - FR NL SL SE*Hibbertia fasciculata* R.Br. ex DC. var. *crassifolia* Benth. = *Hibbertia virgata**Hibbertia fasciculata* R.Br. ex DC. var. *prostrata* (Hook.)Hook.f. = *Hibbertia prostrata**Hibbertia fasciculata* R.Br. ex DC. var. *pubigera* Benth. = *Hibbertia prostrata**Hibbertia fasciculata* sensu J.Black (1952) = *Hibbertia prostrata**Hibbertia glaberrima* F.Muell. - NW*Hibbertia glandulosa* Schldl. = *Hibbertia virgata**Hibbertia muelleri-ferdinandi* Gilg = *Hibbertia glaberrima**Hibbertia ovata* (Labill.)Druce = *Hibbertia aspera**Hibbertia paeninsularis* J.Black - EP ?KI*Hibbertia prostrata* Hook. - EP KI SE*Hibbertia riparia* (R.Br. ex DC.)Hoogl. - FR EP NL MU YP SL KI SE*Hibbertia sericea* (R.Br. ex DC.)Benth. var. *cinerea* (R.Br. ex DC.)J.Black =*Hibbertia* sp. A*Hibbertia sericea* (R.Br. ex DC.)Benth. var. *major* J.Black - EP YP SL KI*Hibbertia sericea* (R.Br. ex DC.)Benth. var. *scabrifolia* J.Black - MU KI SE*Hibbertia sericea* (R.Br. ex DC.)Benth. var. *sericea* - NL MU YP SL KI SE*Hibbertia* sp. A - EP*Hibbertia* sp. B - SL KI*Hibbertia stricta* (DC.)R.Br. ex F.Muell. var. *canescens* Benth. = *Hibbertia riparia**Hibbertia stricta* (DC.)R.Br. ex F.Muell. var. *glabriuscula* Benth. = *Hibbertia riparia**Hibbertia stricta* (DC.)R.Br. ex F.Muell. var. *oblonga* J.Black - KI*Hibbertia stricta* (DC.)R.Br. ex F.Muell. var. *stricta* - SL SE*Hibbertia stricta* (R.Br. ex DC.)F.Muell. - KI*Hibbertia stricta* sensu J.Black (1952) = *Hibbertia riparia**Hibbertia virgata* R.Br. ex DC. - GT EP NL MU YP SL KI SE*Hibbertia virgata* R.Br. ex DC. var. *crassifolia* (Benth.)J.Black = *Hibbertia virgata**Hibbertia virgata* R.Br. ex DC. var. *incana* J.Black = *Hibbertia virgata**Pleurandra acicularis* Labill. = *Hibbertia acicularis**Pleurandra cinerea* R.Br. = *Hibbertia* sp. A*Pleurandra parviflora* R.Br. ex DC., partly = *Hibbertia empetrifolia**Pleurandra parviflora* R.Br. ex DC., partly = *Hibbertia* sp. A

91.105 DILLENACEAE (contd)

- Pleurandra parviflora* R.Br. ex DC., partly = *Hibbertia* sp. B
Pleurandra riparia R.Br. ex DC. = *Hibbertia riparia*
Pleurandra sericea R.Br. ex DC. = *Hibbertia sericea* var. *sericea*
Pleurandra stricta R.Br. ex DC. = *Hibbertia stricta*

91.125 GUTTIFERAE

- Hypericum calycinum* L. - SL
Hypericum gramineum Forster f. - LE FR EA EP NL MU SL KI SE
Hypericum japonicum Thunb. - SL KI SE
 **Hypericum perforatum* L. - EP NL MU SL
Hypericum perforatum L. var. *angustifolium* DC. = *Hypericum perforatum*

91.129 DROSERACEAE

- Drosera auriculata* Backh. ex Planchon - FR EP SL SE
Drosera binata Labill. - SL KI SE
Drosera glanduligera Lehm. - FR EP NL MU YP SL KI SE
Drosera indica L. - LE
Drosera macrantha Endl. ssp. *planchonii* (Hook.f. ex Planchon)N.Marchant -
 FR EP NL MU YP SL KI SE
Drosera menziesii R.Br. var. *albiflora* Benth. = *Drosera macrantha* ssp. *planchonii*
Drosera peltata Thunb. - FR EP NL MU YP SL KI SE
Drosera peltata Thunb. var. *auriculata* (Backh. ex Planchon)Conn = *Drosera auriculata*
Drosera planchonii Hook.f. ex Planchon = *Drosera macrantha* ssp. *planchonii*
Drosera praefolia Tepper = *Drosera whittakeri*
Drosera pygmaea DC. - EP SL KI SE
Drosera whittakeri Planchon - NL MU YP SL KI SE
Drosera whittakeri Planchon var. *praefolia* (Tepper)J.Black = *Drosera whittakeri*

91.130 PAPAVERACEAE

- **Argemone subfusiformis* Ownbey ssp. *subfusiformis* - FR EA EP NL SL SE
Chelidonium corniculatum L. = *Glaucium corniculatum* var. *corniculatum*
Chelidonium hybridum L. = *Roemeria hybrida* var. *hybrida*
 **Eschscholzia californica* Cham. - MU SL
 **Glaucium corniculatum* (L.)Rudolph var. *corniculatum* - LE FR EA EP NL MU YP SL
Glaucium corniculatum (L.)Rudolph var. *flaviflorum* sensu J.Black (1948) =
Glaucium corniculatum var. *corniculatum*
Glaucium corniculatum (L.)Rudolph var. *phoeniceum* (Crantz)DC. =
Glaucium corniculatum var. *corniculatum*
 **Glaucium flavum* Crantz - NL YP SL
Glaucium leiocarpum Boiss. = *Glaucium flavum*
Glaucium luteum Scop. = *Glaucium flavum*
Glaucium phoeniceum Crantz = *Glaucium corniculatum* var. *corniculatum*
 **Papaver aculeatum* Thunb. - FR EP MU YP SL KI
 **Papaver argemone* L. - NL
 **Papaver dubium* L. - NL YP SL SE
Papaver horridum DC. = *Papaver aculeatum*
 **Papaver hybridum* L. - LE NU FR EA EP NL MU YP SL
 **Papaver rhoeas* L. - FR SL KI SE
 **Papaver setigerum* DC. - FR EP MU YP SL SE
Papaver somniferum L. ssp. *setigerum* (DC.)Corbière = *Papaver setigerum*
Papaver somniferum L. var. *setigerum* (DC.)Elkan = *Papaver setigerum*
 **Roemeria hybrida* (L.)DC. var. *hybrida* - NL
Roemeria hybrida (L.)DC. var. *velutino-eriocarpa* Fedde = *Roemeria hybrida* var. *hybrida*

91.131 FUMARIACEAE

- **Fumaria bastardii* Boreau - EP MU YP SL
Fumaria boracii Jordan = *Fumaria muralis* ssp. *boracii*
 **Fumaria capreolata* L. ssp. *capreolata* - FR EP NL MU YP SL KI SE
 **Fumaria densiflora* DC. - FR EP NL MU YP SL
 **Fumaria indica* (Hausskn.)Pugsley - FR
Fumaria micrantha Lagasca = *Fumaria densiflora*
 **Fumaria muralis* Sonder ex Koch - FR EP NL YP SL KI SE

91.131 FUMARIACEAE (contd)

**Fumaria muralis* Sonder ex Koch ssp. *boraei* (Jordan) Pugsley -
distribution not determined

**Fumaria muralis* Sonder ex Koch ssp. *muralis* - distribution not determined

**Fumaria officinalis* L. - EP NL MU YP SL SE

**Fumaria officinalis* L. ssp. *officinalis* - distribution not determined

**Fumaria officinalis* L. ssp. *wirtgenii* (Koch) Arcangeli - distribution not determined

**Fumaria parviflora* Lam. - FR NL YP SL SE

Fumaria spicata L. = *Platycapnos spicata* ssp. *spicata*

**Fumaria vaillantii* Lois. - FR EP

Fumaria vaillantii Lois. var. *indica* Hausskn. = *Fumaria indica*

Fumaria wirtgenii Koch = *Fumaria officinalis* ssp. *wirtgenii*

**Platycapnos spicata* (L.) Bernh. ssp. *spicata* - NL

91.132 HYPECOACEAE

**Hypecoum pendulum* L. - NL YP

Hypecoum trilobum Trautv. = *Hypecoum pendulum*

91.134 CAPPARACEAE

Busbeckea mitchellii (Lindley) F. Muell. = *Capparis mitchellii*

Capparis mitchellii Lindley - LE FR EA EP

Capparis spinosa L. var. *nummularia* sensu J. Black (1948) = *Capparis mitchellii*

Cleome viscosa L. - NW LE FR

Polanisia viscosa (L.) DC. var. *grandiflora* Benth. = *Cleome viscosa*

91.139 CRUCIFERAE

**Alyssum alyssoides* (L.) L. - SE

Alyssum calycinum L. = *Alyssum alyssoides*

**Alyssum linifolium* Stephan ex Willd. - LE GT FR EA EP NL MU YP SL SE

Alyssum maritimum (L.) Lam. = *Lobularia maritima*

Alyssum minimum L. = *Lobularia maritima*

Alyssum minimum Pallas = *Alyssum linifolium*

Anastatica syriaca L. = *Euclidium syriacum*

Arabidella eremigena (F. Muell.) E. Shaw - LE MU

Arabidella filifolia (F. Muell.) E. Shaw - GT FR EA EP NL

Arabidella glaucescens E. Shaw - NW LE NU FR EA

Arabidella nasturtium (F. Muell.) E. Shaw - LE GT FR EA EP MU SE

Arabidella procumbens (Tate) E. Shaw - LE FR EA MU

Arabidella trisecta (F. Muell.) O. Schulz - NW LE NU GT FR EA EP NL MU ? KI

Arabidella trisecta (F. Muell.) O. Schulz var. *brachycarpa* (Benth.) O. Schulz =

Arabidella glaucescens

Arabidella trisecta (F. Muell.) O. Schulz var. *hybophora* O. Schulz = *Arabidella trisecta*

Barbarea praecox (Smith) R. Br. = *Barbarea verna*

**Barbarea verna* (Miller) Asch. - SL

Blennodia blennodioides (F. Muell.) Druce = *Harmsiodoxa blennodioides*

Blennodia brevipes (F. Muell.) F. Muell. = *Harmsiodoxa brevipes* var. *brevipes*

Blennodia canescens R. Br. - NW LE NU GT FR EA EP

Blennodia canescens R. Br. var. *pterosperma* J. Black = *Blennodia pterosperma*

Blennodia cardaminoides (F. Muell.) Benth. = *Pachymitus cardaminoides*

Blennodia cunninghamii Benth. = *Harmsiodoxa blennodioides*

Blennodia curvipes (F. Muell.) F. Muell. = *Scambopus curvipes*

Blennodia eremigena (F. Muell.) Benth. = *Arabidella eremigena*

Blennodia filifolia (F. Muell.) Benth. = *Arabidella filifolia*

Blennodia lasiocarpa F. Muell. = *Harmsiodoxa blennodioides*

Blennodia lucae (F. Muell.) Maiden & Betche = *Pachymitus cardaminoides*

Blennodia nasturtioides (F. Muell.) Benth. = *Arabidella nasturtium*

Blennodia nasturtioides (F. Muell.) Benth. var. *pinnatifida* Benth. = *Arabidella procumbens*

Blennodia nasturtium (F. Muell.) Druce = *Arabidella nasturtium*

Blennodia procumbens (Tate) Tate = *Arabidella procumbens*

Blennodia pterosperma (J. Black) J. Black - NW LE GT FR EA

Blennodia richardsii (F. Muell.) J. Black = *Phlegmatospermum richardsii*

Blennodia trisecta (F. Muell.) Benth. = *Arabidella trisecta*

Blennodia trisecta (F. Muell.) Benth. var. *brachycarpa* Benth. = *Arabidella glaucescens*

Brassica adpressa (Moench) Boiss. = *Hirschfeldia incana*

91.139 CRUCIFERAE (contd)

- Brassica campestris* L. = *Brassica rapa* ssp. *rapa*
Brassica campestris L. ssp. *napus* (L.) Hook.f. = *Brassica napus*
 **Brassica elongata* Ehrh. - NU NL
 **Brassica fruticulosa* Cirillo - SL
Brassica geniculata (Desf.) Benth. = *Hirschfeldia incana*
Brassica incana (L.) Meigen = *Hirschfeldia incana*
 **Brassica juncea* (L.) Czernj. - NL SL SE
Brassica muralis (L.) Hudson = *Diplotaxis muralis* var. *muralis*
 **Brassica napus* L. - NL MU SL SE
 **Brassica nigra* (L.) S.Kohl ex Koch - FR SL SE
 **Brassica oleracea* L. - NL MU YP SL SE
Brassica orientalis L. = *Conringia orientalis*
 **Brassica rapa* L. ssp. *oleifolia* DC. - MU SL
 **Brassica rapa* L. ssp. *rapa* - EP SL SE
Brassica sinapis Vis. = *Sinapis arvensis*
Brassica sinapistrum Boiss. = *Sinapis arvensis*
Brassica tenuifolia (L.) Fries = *Diplotaxis tenuifolia*
 **Brassica tournefortii* Gouan - NW LE NU GT FR EA EP NL MU YP SL SE
Bunias edentula Bigelow = *Cakile edentula*
Bursa cochlearina (F.Muell.) Kuntze = *Phlegmatospermum cochlearinum*
Bursa pilosula (F.Muell.) Kuntze = *Microlepidium pilosulum*
Cakile californica Heller = *Cakile edentula*
 **Cakile edentula* (Bigelow) Hook. - NU EP YP SL KI SE
Cakile edentula (Bigelow) Hook. ssp. *californica* (Heller) Hulten = *Cakile edentula*
Cakile lanceolata (Willd.) O.Schulz var. *australiensis* Thell. = *Cakile edentula*
 **Cakile maritima* Scop. ssp. *maritima* - NU EP NL MU YP SL KI SE
Calepina irregularis (Asso) Thell. - YP
 **Camelina alyssum* (Miller) Thell. - SL SE
Camelina dentata (Willd.) Pers. = *Camelina alyssum*
 **Camelina sativa* (L.) Crantz - SL
Camelina sativa (L.) Crantz ssp. *alyssum* (Miller) E.Schmid = *Camelina alyssum*
Capsella andraeana F.Muell. = *Cuphonotus andraeanus*
Capsella australasica F.Muell. ex Hannafor = *Hymenolobus procumbens*
 **Capsella bursapastoris* (L.) Medikus - LE FR ?EA EP NL MU YP SL KI SE
Capsella cochlearina (F.Muell.) F.Muell. = *Phlegmatospermum cochlearinum*
Capsella cochlearina (F.Muell.) F.Muell. var. *ochrantha* (F.Muell. ex Benth.) Maiden & Betche =
 Phlegmatospermum cochlearinum
Capsella elliptica Meyer = *Hymenolobus procumbens*
Capsella humistrata F.Muell. = *Cuphonotus humistratus*
Capsella ochrantha (F.Muell. ex Benth.) F.Muell. = *Phlegmatospermum cochlearinum*
Capsella pilosula (F.Muell.) F.Muell. = *Microlepidium pilosulum*
Capsella procumbens (L.) Fries = *Hymenolobus procumbens*
Capsella procumbens (L.) Fries var. *integrifolia* (DC.) Rupr. = *Hymenolobus procumbens*
Capsella villosula F.Muell. & Tate = *Menkea villosula*
Cardamine debilis sensu J.H.Willis (1973) = *Cardamine gunnii*
Cardamine dictyosperma Hook. = *Rorippa dictyosperma*
Cardamine eustylis F.Muell. = *Rorippa eustylis*
Cardamine finitima O.Schulz = *Cardamine tenuifolia*
 **Cardamine flexuosa* With. - SL
Cardamine gunnii Hewson - SL SE
Cardamine heterophylla Hook. = *Cardamine gunnii*
 **Cardamine hirsuta* L. - EP NL SL KI SE
Cardamine hirsuta L. var. *heterophylla* (Hook.) Hook.f. = *Cardamine gunnii*
Cardamine hirsuta L. var. *reniformis* J.Black = *Cardamine hirsuta*
Cardamine hirsuta L. var. *tenuifolia* (Hook.) Rodway = *Cardamine tenuifolia*
Cardamine intermedia Hornem. ssp. *antipodum* O.Schulz = *Cardamine paucijuga*
Cardamine laciniata F.Muell. = *Rorippa laciniata*
Cardamine palustris (Wimmer & Grab.) Peterm. forma *barbareacfolia* (Del.) Kuntze =
 Rorippa palustris
Cardamine paucijuga Turcz. - SL KI SE
Cardamine pratensis L. var. *tenuifolia* (Hook.) Hook.f. = *Cardamine tenuifolia*
Cardamine tenuifolia Hook. - ?SL SE
 **Cardaria draba* (L.) Desv. - NU FR NL MU YP SL KI SE

91.139 CRUCIFERAE (contd)

- Carinavalva glauca* Ising - LE
 **Carrichtera annua* (L.)DC. - NW LE NU GT FR EA EP NL MU YP SL
Cheiranthus bicornis Sibth. & Smith = *Matthiola longipetala* ssp. *bicornis*
 **Cheiranthus cheiri* L. - YP
Cheiranthus incanus L. = *Matthiola incana*
Clypeola alyssoides L. = *Alyssum alyssoides*
Clypeola campestris L. = *Alyssum alyssoides*
Clypeola maritima L. = *Lobularia maritima*
Cochlearia coronopus L. = *Coronopus squamatus*
 **Conringia orientalis* (L.)C.Presl - NL SL SE
 **Coronopus didymus* (L.)Smith - FR EP MU YP SL KI SE
Coronopus didymus (L.)Smith var. *incisa* (Willd.)Hook. = *Coronopus didymus*
Coronopus procumbens Gilib. = *Coronopus squamatus*
Coronopus ruellii All. = *Coronopus squamatus*
 **Coronopus squamatus* (Forsskal)Asch. - SE
Coronopus verrucarius (Garsault)Muschler & Thell. = *Coronopus squamatus*
Coronopus verrucarius (Garsault)Muschler & Thell. ssp. *euverrucarius* Muschler =
Coronopus squamatus
Cuphonotus andraeanus (F.Muell.)E.Shaw - NW LE
Cuphonotus humistratus (F.Muell.)O.Schulz - LE GT
Cuphonotus humistratus (F.Muell.)O.Schulz var. *papillosus* O.Schulz =
Cuphonotus andraeanus
 **Descurainia sophia* (L.)Webb ex Prantl - SL
Diplotaxis muralis (L.)DC. var. *babingtonii* Syme ex Marquand =
Diplotaxis muralis var. *caulescens*
Diplotaxis muralis (L.)DC. var. *caulescens* Kittel - not in S.Aust.
 **Diplotaxis muralis* (L.)DC. var. *muralis* - NU FR EA EP NL MU YP SL KI SE
 **Diplotaxis tenuifolia* (L.)DC. - FR EA EP NL MU YP SL KI SE
Draba praecox Steven = *Erophila verna* ssp. *praecox*
Draba verna L. = *Erophila verna* ssp. *verna*
 **Erophila verna* (L.)Chevall. ssp. *praecox* (Steven)Walters - EP ?NL SL SE
 **Erophila verna* (L.)Chevall. ssp. *verna* - ?NL SL
Erophila vulgaris DC. = *Erophila verna* ssp. *verna*
 **Eruca sativa* Miller - FR EP NL MU SL SE
Eruca vesicaria (L.)Cav. ssp. *sativa* (Miller)Thell. = *Eruca sativa*
Erysimum cunninghamii (Benth.)F.Muell. = *Harmsiodoxa blennodioides*
Erysimum blennodia (F.Muell.)F.Muell. = *Blennodia canescens*
Erysimum blennodioides F.Muell. = *Harmsiodoxa blennodioides*
Erysimum brevipes F.Muell. = *Harmsiodoxa brevipes* var. *brevipes*
Erysimum cardaminoides (F.Muell.)F.Muell. = *Pachymitus cardaminoides*
Erysimum curvipes F.Muell. = *Scambopus curvipes*
Erysimum filifolium F.Muell. = *Arabidella filifolia*
Erysimum lasiocarpum (F.Muell.)F.Muell. = *Harmsiodoxa blennodioides*
Erysimum lucae F.Muell. = *Pachymitus cardaminoides*
Erysimum nasturtium F.Muell. = *Arabidella nasturtium*
Erysimum officinale L. = *Sisymbrium officinale*
Erysimum orientale (L.)Miller = *Conringia orientalis*
Erysimum perfoliatum Crantz = *Conringia orientalis*
Erysimum praecox Smith = *Barbarea verna*
 **Erysimum repandum* L. - YP
Erysimum richardsii F.Muell. = *Phlegmatospermum richardsii*
Erysimum trisectum F.Muell. = *Arabidella trisecta*
Erysimum vernum Miller = *Barbarea verna*
 **Euclidium syriacum* (L.)R.Br. - YP
Eunomia cochlearina F.Muell. = *Phlegmatospermum cochlearinum*
Geococcus fiedleri Scheuerm. = *Geococcus pusillus*
Geococcus pusillus J.L.Drumm. ex Harvey - FR EA EP NL MU YP
Harmsiodoxa blennodioides (F.Muell.)O.Schulz - NW LE FR EA EP MU
Harmsiodoxa brevipes (F.Muell.)O.Schulz var. *brevipes* - NW LE FR EA EP MU YP SL
Harmsiodoxa brevipes (F.Muell.)O.Schulz var. *major* E.Shaw - LE FR
Harmsiodoxa cunninghamii (Benth.)O.Schulz = *Harmsiodoxa blennodioides*
Harmsiodoxa puberula E.Shaw - NW LE FR
Hirschfeldia adpressa Moench = *Hirschfeldia incana*
 **Hirschfeldia incana* (L.)Lagr.-Fossat - EP MU SL SE

91.139 CRUCIFERAE (contd)

Hutchinsia cochlearina (F.Muell.) J.Black = *Phlegmatospermum cochlearinum**Hutchinsia eremaea* J.Black = *Phlegmatospermum eremaeum**Hutchinsia humistrata* (F.Muell.) J.Black = *Cuphonotus humistratus**Hutchinsia ochrantha* (F.Muell. ex Benth.) J.Black = *Phlegmatospermum cochlearinum**Hutchinsia procumbens* (L.) Desv. = *Hymenolobus procumbens**Hutchinsia procumbens* (L.) Desv. var. *integrifolia* DC. = *Hymenolobus procumbens**Hymenolobus alatus* J.Black = *Microlepidium alatum***Hymenolobus procumbens* (L.) Nutt. ex Schinz & Thell. -

NU GT FR EA EP NL MU YP SL KI SE

Iberis crenata* Lam. - EP*Irenepharsus phasmatodes* Hewson - KI*Koniga maritima* (L.) R.Br. = *Lobularia maritimaLemphoria procumbens* (Tate) O.Schulz = *Arabidella procumbens**Lepia rotunda* Desv. = *Lepidium rotundum***Lepidium africanum* (Burman f.) DC. - NU FR EA EP NL MU YP SL SE*Lepidium ambiguum* F.Muell. = *Lepidium hyssopifolium**Lepidium aschersonii* Thell. - not in S.Aust.**Lepidium bonariense* L. - NL MU*Lepidium chrysanthemifolium* Domin = *Lepidium foliosum**Lepidium crispum* Desv. = *Lepidium foliosum**Lepidium cuneifolium* DC. = *Lepidium foliosum**Lepidium desvauxii* Thell. - EP KI*Lepidium desvauxii* Thell. var. *gracilescens* Thell. = *Lepidium hyssopifolium**Lepidium desvauxii* Thell. var. *hookeri* Thell. = *Lepidium hyssopifolium**Lepidium desvauxii* Thell. var. *typicum* Thell. = *Lepidium desvauxii**Lepidium didymum* L. = *Coronopus didymus**Lepidium draba* L. = *Cardaria draba**Lepidium dubium* Thell. = *Lepidium hyssopifolium**Lepidium eraemeum* Domin = *Lepidium phlebopetalum**Lepidium fasciculatum* Thell. - LE NU GT FR EA EP NL MU YP ?SL*Lepidium foliosum* Desv. - EP YP KI SE*Lepidium foliosum* Desv. var. *crispum* (Desv.) Thell. = *Lepidium foliosum**Lepidium foliosum* Desv. var. *cuneifolium* (DC.) Thell. = *Lepidium foliosum**Lepidium foliosum* Desv. var. *fruticulosum* (Desv.) Thell. = *Lepidium foliosum**Lepidium foliosum* Desv. var. *typicum* Thell. = *Lepidium foliosum**Lepidium fruticulosum* Desv. = *Lepidium foliosum**Lepidium halmaturinum* J.Black = *Lepidium desvauxii**Lepidium hyssopifolium* Desv. - ?MU*Lepidium hyssopifolium* Thell. var. *desvauxii* (Thell.) Domin = *Lepidium desvauxii**Lepidium hyssopifolium* Thell. var. *epilosum* Domin = *Lepidium pseudohyssopifolium**Lepidium hyssopifolium* Thell. var. *gracilescens* (Thell.) Domin = *Lepidium hyssopifolium**Lepidium hyssopifolium* Thell. var. *intercedens* Domin = *Lepidium desvauxii**Lepidium hyssopifolium* Thell. var. *tasmanicum* (Thell.) Domin = *Lepidium hyssopifolium**Lepidium hyssopifolium* sensu J.Black (1948), partly = *Lepidium africanum**Lepidium impressum* Bunge = *Lepidium foliosum***Lepidium latifolium* L. - SL*Lepidium leptopetalum* (F.Muell.) F.Muell. - FR EP NL MU*Lepidium monoplocoides* F.Muell. - MU*Lepidium muelleri-ferdinandi* Thell. - NW LE FR EA*Lepidium novae-hollandiae* Desv. = *Lepidium foliosum**Lepidium oxytrichum* Sprague - NW LE NU GT FR EA EP MU*Lepidium papillosum* F.Muell. - LE GT FR EA EP NL MU*Lepidium papillosum* F.Muell. forma *purpureum* Domin = *Lepidium oxytrichum**Lepidium papillosum* F.Muell. var. *normale* Domin = *Lepidium oxytrichum**Lepidium papillosum* F.Muell. var. *pubescens* F.Muell. = *Lepidium muelleri-ferdinandi**Lepidium peregrinum* Thell. var. *glabripes* Thell. = *Lepidium pseudohyssopifolium***Lepidium perfoliatum* L. - SL*Lepidium phlebopetalum* (F.Muell.) F.Muell. - NW LE NU GT FR EA EP MU*Lepidium praetervisum* Domin = *Lepidium desvauxii**Lepidium procumbens* L. = *Hymenolobus procumbens**Lepidium pseudohyssopifolium* Hewson - MU SL SE*Lepidium pseudopapillosum* Thell. - FR*Lepidium pseudoruderale* Thell. - LE FR*Lepidium pseudotasmanicum* Thell. - MU

91.139 CRUCIFERAE (contd)*Lepidium pubescens* Desv. - NL*Lepidium rotundum* (Desv.)DC. - NW NU EP YP*Lepidium rotundum* (Desv.)DC. var. *phlebopetalum* (F.Muell.)Maiden & Betche =*Lepidium phlebopetalum**Lepidium ruderales* L. - not in S.Aust.*Lepidium ruderales* L. var. *robusta* Hook.f. = *Lepidium desvauxii**Lepidium ruderales* Thell. var. *crispum* (Desv.)Benth. = *Lepidium foliosum**Lepidium ruderales* Thell. var. *simplicissimum* F.Muell. = *Lepidium fasciculatum**Lepidium ruderales* sensu F.Muell. (1882) = *Lepidium fasciculatum**Lepidium sagittulatum* Thell. - LE NU GT EA MU*Lepidium sagittulatum* Thell. var. *fasciculatum* (Thell.)Domin = *Lepidium fasciculatum**Lepidium sagittulatum* Thell. var. *genuinum* Domin = *Lepidium sagittulatum**Lepidium sativum* L. - NL SL SE*Lepidium squamatum* Forskal = *Coronopus squamatus**Lepidium strongylophyllum* F.Muell. ex Benth. - LE FR*Lepidium tasmanicum* Thell. = *Lepidium hyssopifolium***Lobularia maritima* (L.)Desv. - YP SL SE*Matthiola bicornis* (Sibth. & Smith)DC. = *Matthiola longipetala* ssp. *bicornis***Matthiola incana* (L.)R.Br. - NW EP YP SL KI SE**Matthiola longipetala* (Vent.)DC. ssp. *bicornis* (Sibth. & Smith)Ball - NL YP SE*Meniocus australasicus* Turcz. = *Alyssum linifolium**Meniocus linifolius* (Stephan ex Willd.)DC. = *Alyssum linifolium**Menkea australis* Lehm. - NW LE NU GT FR EA EP MU*Menkea coolgardiensis* S.Moore = *Menkea australis**Menkea crassa* E.Shaw - NW LE GT FR EA EP*Menkea hispidula* J.Black = *Menkea villosula**Menkea lutea* E.Shaw - NW*Menkea procumbens* (Hook.)F.Muell. = *Menkea australis**Menkea sphaerocarpa* F.Muell. - NW LE*Menkea villosula* (F.Muell. & Tate)J.Black - NW LE NU GT*Microlepidium alatum* (J.Black)E.Shaw - EP*Microlepidium pilosulum* F.Muell. - EP MU YP KI*Micromystria eremigena* (F.Muell.)O.Schulz = *Arabidella eremigena**Micromystria nasturtium* (F.Muell.)O.Schulz = *Arabidella nasturtium**Micromystria nasturtium* (F.Muell.)O.Schulz var. *pinnatifida* (Benth.)O.Schulz =*Arabidella procumbens**Monoploca leptopetala* F.Muell. = *Lepidium leptopetalum**Monoploca phlebopetala* F.Muell. = *Lepidium phlebopetalum**Myagrum alyssum* Miller = *Camelina alyssum**Myagrum irregularis* Asso = *Calepina irregularis**Myagrum paniculatum* L. = *Neslia paniculata***Myagrum perfoliatum* L. - EP NL YP*Myagrum rugosum* L. = *Rapistrum rugosum**Myagrum sativum* L. = *Camelina sativa**Nasturtium eustyle* (F.Muell.)Kuntze = *Rorippa eustylis**Nasturtium foliosum* (Desv.)Kuntze = *Lepidium foliosum**Nasturtium laciniatum* (F.Muell.)O.Schulz = *Rorippa laciniata**Nasturtium leptopetalum* (F.Muell.)Kuntze = *Lepidium leptopetalum**Nasturtium microphyllum* Boenn. ex Reichb. = *Rorippa microphylla**Nasturtium monoplocoides* (F.Muell.)Kuntze = *Lepidium monoplocoides**Nasturtium officinale* R.Br. = *Rorippa nasturtium-aquaticum**Nasturtium palustre* (L.)DC. = *Rorippa palustris**Nasturtium phlebopetalum* (F.Muell.)Kuntze = *Lepidium phlebopetalum**Nasturtium semipinnatifidum* Hook. = *Rorippa palustris**Nasturtium strongylophyllum* (F.Muell. ex Benth.)Kuntze = *Lepidium strongylophyllum**Nasturtium terrestre* (With.)R.Br. = *Rorippa palustris**Nasturtium terrestre* (With.)R.Br. var. *semipinnatifidum* (Hook.)Hook.f. = *Rorippa palustris**Nasturtium verrucarium* Garsault = *Coronopus squamatus***Neslia paniculata* (L.)Desv. - FR NL YP SL*Pachymitus cardaminoides* (F.Muell.)O.Schulz - FR MU YP SE*Pachymitus cardaminoides* (F.Muell.)O.Schulz var. *dasycarpus* O.Schulz =*Pachymitus cardaminoides**Pachymitus luciae* (F.Muell.)O.Schulz = *Pachymitus cardaminoides**Phlegmatospermum andraeanum* (F.Muell.)O.Schulz = *Cuphonotus andraeanus*

91.139 CRUCIFERAE (contd)

- Phlegmatospermum cochlearinum* (F.Muell.)O.Schulz - LE NU GT FR EA EP
Phlegmatospermum cochlearinum (F.Muell.)O.Schulz var. *eremaeum* (J.Black)J.Black =
Phlegmatospermum eremaeum
Phlegmatospermum cochlearinum (F.Muell.)O.Schulz
var. *ochranthum* (F.Muell. ex Benth.)J.Black = *Phlegmatospermum cochlearinum*
Phlegmatospermum eremaeum (J.Black)E.Shaw - LE NU EP NL MU YP
Phlegmatospermum ochranthum (F.Muell. ex Benth.)O.Schulz =
Phlegmatospermum cochlearinum
Phlegmatospermum richardsii (F.Muell.)E.Shaw - NU EP
Phlegmatospermum villosulum (F.Muell. & Tate)O.Schulz = *Menkea villosula*
Pseudoarabidella filifolia (F.Muell.)O.Schulz = *Arabidella filifolia*
**Raphanus raphanistrum* L. - LE FR EP NL MU YP SL SE
**Raphanus sativus* L. - SL
**Rapistrum rugosum* (L.)All. - LE FR EP NL MU YP SL SE
Rorippa dictyosperma (Hook.)L.Johnson - SL SE
Rorippa eustylis (F.Muell.)L.Johnson - FR MU
**Rorippa islandica* (Oeder)Borbás - SL SE
Rorippa laciniata (F.Muell.)L.Johnson - MU SL
**Rorippa microphylla* (Boenn. ex Reichb.)Hylander - SL SE
**Rorippa nasturtium-aquaticum* (L.)Hayek - FR EP NL MU SL SE
**Rorippa palustris* (L.)Besser - MU SL SE
**Rorippa sylvestris* (L.)Besser ssp. *sylvestris* - SL
Scambopus curvipes (F.Muell.)O.Schulz - GT FR EP NL
Scambopus richardsii (F.Muell.)O.Schulz = *Phlegmatospermum richardsii*
Senebiera coronopus (L.)Poiret = *Coronopus squamatus*
Senebiera didyma (L.)Pers. = *Coronopus didymus*
Senebiera incisa Willd. = *Coronopus didymus*
Senebiera pinnatifida DC. = *Coronopus didymus*
**Sinapis arvensis* L. - NL SL ?KI SE
Sinapis geniculata Desf. = *Hirschfeldia incana*
Sinapis incana L. = *Hirschfeldia incana*
Sinapis juncea L. = *Brassica juncea*
Sinapis nigra L. = *Brassica nigra*
Sisymbrium amphibium L. var. *palustre* L. = *Rorippa palustris*
Sisymbrium barbaeae-folium Del. = *Rorippa palustris*
Sisymbrium blennodia F.Muell. = *Blennodia canescens*
Sisymbrium brachypodum F.Muell. = *Harmsiodoxa brevipes* var. *brevipes*
Sisymbrium brevipes (F.Muell.)F.Muell. = *Harmsiodoxa brevipes* var. *brevipes*
Sisymbrium cardaminoides F.Muell. = *Pachymitus cardaminoides*
Sisymbrium columnae Jacq. = *Sisymbrium orientale*
Sisymbrium curvipes (F.Muell.)O.Schulz = *Scambopus curvipes*
Sisymbrium eremigenum F.Muell. = *Arabidella eremigena*
**Sisymbrium erysimoides* Desf. - NW LE NU GT FR EA EP NL MU YP SL SE
Sisymbrium filifolium (F.Muell.)F.Muell. = *Arabidella filifolia*
**Sisymbrium irio* L. - LE NU GT FR EA EP NL MU YP SL SE
Sisymbrium islandicum Oeder = *Rorippa islandica*
Sisymbrium lasiocarpum F.Muell. = *Harmsiodoxa blennodioides*
Sisymbrium murale L. = *Diploaxis muralis* var. *muralis*
Sisymbrium nasturtioides F.Muell. = *Arabidella nasturtium*
Sisymbrium nasturtium-aquaticum L. = *Rorippa nasturtium-aquaticum*
**Sisymbrium officinale* (L.)Scop. - EP NL MU SL SE
**Sisymbrium orientale* L. - NW LE GT FR EA EP NL YP SL KI SE
Sisymbrium palustre (L.)Leysser = *Rorippa palustris*
Sisymbrium procumbens Tate = *Arabidella procumbens*
Sisymbrium richardsii (F.Muell.)F.Muell. = *Phlegmatospermum richardsii*
Sisymbrium sophia L. = *Descurainia sophia*
Sisymbrium sylvestri L. = *Rorippa sylvestris* ssp. *sylvestris*
Sisymbrium tenuifolium L. = *Diploaxis tenuifolia*
Sisymbrium terrestre With. = *Rorippa palustris*
Sisymbrium trisectum (F.Muell.)F.Muell. = *Arabidella trisecta*
Sisymbrium lucae (F.Muell.)F.Muell. = *Pachymitus cardaminoides*
Stenopetalum anfractum E.Shaw - NW LE
Stenopetalum croceum Tate = ?*Stenopetalum lineare*
Stenopetalum filifolium Benth. - not in S.Aust.

91.139 CRUCIFERAE (contd)

- Stenopetalum incisifolium* Hook.f. = *Hymenolobus procumbens*
Stenopetalum lineare R.Br. ex DC. - NW LE NU GT FR EA EP NL MU YP SL SE
Stenopetalum lineare R.Br. ex DC. var. *canescens* Benth. = *Stenopetalum lineare*
Stenopetalum nutans F.Muell. - NW LE EP
Stenopetalum procumbens Hook. = *Menkea australis*
Stenopetalum sphaerocarpum F.Muell. - NW NU GT FR EP NL MU YP ?SL
Stenopetalum trisectum Tate = *Stenopetalum lineare*
Stenopetalum velutinum F.Muell. - NW LE NU GT FR
Thlaspi africanus Burman f. = *Lepidium africanum*
Thlaspi bursapastoris L. = *Capsella bursapastoris*
Thlaspi cochlearinum (F.Muell.)F.Muell. = *Phlegmatospermum cochlearinum*
Thlaspi cochlearinum (F.Muell.)F.Muell. var. *ochrantha* (F.Muell. ex Benth.)F.Turner =
Phlegmatospermum cochlearinum
Thlaspi ochranthum F.Muell. ex Benth. = *Phlegmatospermum cochlearinum*
Vella annua L. = *Carrichtera annua*

91.141 RESEDACEAE

- **Reseda alba* L. - SL SE
 **Reseda lutea* L. - EP NL MU YP SL SE
 **Reseda luteola* L. - EA EP NL MU SL SE
 **Reseda odorata* L. - EP NL YP SL

91.149 CRASSULACEAE

- **Aeonium arboreum* (L.)Webb & Berth. - NL SL
 **Aeonium castello-paivae* Bolle - YP KI
Bulliarda recurva Hook.f. = *Crassula helmsii*
Cotyledon oblonga Haw. = *Cotyledon orbiculata* var. *oblonga*
 **Cotyledon orbiculata* L. var. *oblonga* (Haw.)DC. - YP SL SE
 **Cotyledon orbiculata* L. var. *orbiculata* - YP SL KI
 **Crassula alata* (Viv.)A.Berger var. *alata* - SL SE
Crassula bonariensis Cambess. = *Crassula peduncularis*
 **Crassula ciliata* L. - SL
Crassula colorata (Nees)Ostenf. var. *acuminata* (Reader)Toelken -
 NW LE NU GT FR EA EP NL MU YP SL SE
Crassula colorata (Nees)Ostenf. var. *colorata* - NU GT FR EA EP NL MU YP SL SE
Crassula colorata (Nees)Ostenf. var. *tuberculata* Toelken =
Crassula colorata var. *acuminata*
Crassula decumbens Thunb. var. *decumbens* - GT FR EP NL MU YP SL KI SE
Crassula exserta (Reader)Ostenf. - EP SL SE
 **Crassula glomerata* P.Bergius - SE
Crassula helmsii (Kirk)Cockayne - MU SL KI SE
Crassula intricata (Nees)Ostenf. = *Crassula colorata* var. *colorata*
Crassula macrantha (Hook.f.)Diels & E.Pritzel = *Crassula decumbens* var. *decumbens*
 **Crassula multicava* Lemaire ssp. *multicava* - SL
 **Crassula natans* Thunb. var. *minus* (Ecklon & Zeyher)G.Rowley -
 EP MU YP SL KI SE
Crassula pedicellosa (F.Muell.)Ostenf. - EP NL YP SL KI SE
Crassula peduncularis (Smith)F.Meigen - MU SL KI SE
Crassula purpurata (Hook.f.)Domin = *Crassula peduncularis*
Crassula recurva (Hook.f.)Ostenf. = *Crassula helmsii*
Crassula robusta Toelken = *Crassula tetragona* ssp. *robusta*
Crassula sieberana (Schultes & Schultes f.)Druce ssp. *sieberana* - SL
Crassula sieberana (Schultes & Schultes f.)Druce ssp. *tetramera* Toelken -
 NW LE NU GT FR EA EP NL MU YP SL KI SE
 **Crassula tetragona* L. ssp. *robusta* (Toelken)Toelken - MU SL
Crassula tillaea Lester-Garl. = *Crassula alata* var. *alata*
Crassula tripartita Wakef. = *Crassula alata* var. *alata*
Helophytum natans (Thunb.)Ecklon & Zeyher var. *minus* Ecklon & Zeyher =
Crassula natans var. *minus*
Sedum altissimum Poiret = *Sedum sediforme*
Sedum dendroideum DC. ssp. *praealtum* (A.DC.)Clausen = *Sedum praealtum*
Sedum nicaense All. = *Sedum sediforme*
 **Sedum praealtum* A.DC. - SL
 **Sedum sediforme* (Jacq.)Pau - YP SL

91.149 CRASSULACEAE (contd)

- Sempervivum arboreum* L. = *Aeonium arboreum*
Sempervivum sediforme Jacq. = *Sedum sediforme*
Tillaea acuminata Reader = *Crassula colorata* var. *acuminata*
Tillaea adscendens Nees = *Crassula colorata* var. *colorata*
Tillaea alata Viv. = *Crassula alata* var. *alata*
Tillaea colorata Nees = *Crassula colorata* var. *colorata*
Tillaea exserta Reader = *Crassula exserta*
Tillaea helmsii Kirk = *Crassula helmsii*
Tillaea intricata Nees = *Crassula colorata* var. *colorata*
Tillaea macrantha Hook.f. = *Crassula decumbens* var. *decumbens*
Tillaea macrantha Hook.f. var. *pedicellosa* F.Muell. = *Crassula pedicellosa*
Tillaea pedicellosa (F.Muell.)F.Muell. = *Crassula pedicellosa*
Tillaea purpurata Hook.f. = *Crassula peduncularis*
Tillaea recurva Hook.f. = *Crassula helmsii*
Tillaea sieberana Schultes f. = *Crassula sieberana* ssp. *sieberana*
Tillaea sieberana Schultes & Schultes f. var. *acuminata* (Reader)Ewart, Jean White & Tovey =
Crassula colorata var. *acuminata*
Tillaea verticillaris DC. = *Crassula sieberana* ssp. *sieberana*

91.152 BAUERACEAE

- Bauera rubioides* Andrews - KI

91.173 PITTOSPORACEAE

- Billardiera angustifolia* DC. = *Billardiera scandens* var. *scandens*
Billardiera bignoniacea (F.Muell.)E.Bennett - MU SL KI
Billardiera brachyantha F.Muell. ex Klatt = *Billardiera scandens* var. *scandens*
Billardiera canariensis Wendl. = *Billardiera scandens* var. *scandens*
Billardiera cymosa - NL
Billardiera cymosa F.Muell. - FR EP MU YP SL KI SE
Billardiera cymosa F.Muell. var. *sericophora* (F.Muell.)Benth. = *Billardiera sericophora*
Billardiera daphnoides Knowles & Westc. = *Billardiera scandens* var. *scandens*
Billardiera fusiformis Labill. = *Sollya heterophylla*
Billardiera hambruchiiana Seemann & J.C.Schmidt = *Sollya heterophylla*
Billardiera latifolia Putterl. = *Billardiera scandens* var. *scandens*
Billardiera mutabilis Salisb. = *Billardiera scandens* var. *scandens*
Billardiera procumbens (Hook.)E.Bennett - KI
Billardiera pseudocymosa Klatt = *Billardiera cymosa*
Billardiera scandens Smith var. *brachyantha* (F.Muell. ex Klatt)Benth. =
Billardiera scandens var. *scandens*
Billardiera scandens Smith var. *scandens* - SE
Billardiera sericophora F.Muell. - FR EP MU YP SL SE
Billardiera sericophora F.Muell. var. *megaphylla* F.Muell. = *Billardiera sericophora*
Billardiera uniflora E.Bennett - EP NL SL KI
Billardiera versicolor F.Muell. ex Klatt - FR EP MU YP SL KI SE
Bursaria diosmoides Putterl. = *Billardiera procumbens*
Bursaria lasiophylla E.Bennett var. *albicoma* E.Bennett - FR MU
Bursaria pantonii Guilfoyle = *Bursaria spinosa*
Bursaria procumbens (Hook.)Putterl. = *Billardiera procumbens*
Bursaria spinosa Cav. - FR EA EP NL MU YP SL KI SE
Bursaria spinosa Cav. var. *australis* E.Bennett = *Bursaria spinosa*
Bursaria spinosa Cav. var. *lanceolata* E.Bennett = *Bursaria spinosa*
Bursaria spinosa Cav. var. *luzurians* Ewart, B.Rees & B.Wood = *Bursaria spinosa*
Bursaria spinosa Cav. var. *macrophylla* Hook. = *Bursaria spinosa*
Bursaria spinosa Cav. var. *microphylla* Ewart, B.Rees & B.Wood = *Bursaria spinosa*
Bursaria spinosa Cav. var. *obovata* E.Bennett = *Bursaria spinosa*
Bursaria spinosa Cav. var. *pantonii* (Guilfoyle)Ewart = *Bursaria spinosa*
Bursaria stuartiana F.Muell. ex Klatt = *Billardiera procumbens*
Campylanthera ericoides Lindley = *Billardiera procumbens*
Cheiranthra alternifolia E.Bennett - FR EP NL MU YP SL KI SE
Cheiranthra cyanea sensu H.Eichler (1965) = *Cheiranthra alternifolia*
Cheiranthra linearis sensu J.Black (1948) = *Cheiranthra alternifolia*
Cheiranthra volubilis Benth. - KI
Cyrilla spinosa (Andrews)Sprengel = *Bursaria spinosa*
Itea spinosa Andrews = *Bursaria spinosa* var. *spinosa*

91.173 PITTOSPORACEAE (contd)*Labillardiera fusiformis* (Labill.)Schultes = *Sollya heterophylla**Labillardiera mutabilis* (Salisb.)Schultes = *Billardiera scandens* var. *scandens**Labillardiera scandens* (Smith)Schultes = *Billardiera scandens* var. *scandens**Marianthus bignoniaceus* F.Muell. = *Billardiera bignoniacea**Marianthus procumbens* (Hook.)Benth. = *Billardiera procumbens**Pittosporum acacioides* Cunn. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum angustifolium* Lodd. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum lanceolatum* Cunn. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum ligustrifolium* Cunn. ex Putterl. =*Pittosporum phylliraeoides* var. *microcarpa**Pittosporum longifolium* Putterl. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum nanum* Hook. = *Billardiera procumbens**Pittosporum oleaefolium* Cunn. ex Putterl. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum phillyreoides* DC. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum phylliraeoides* DC. var. *microcarpa* S.Moore -

NW LE NU GT FR EA EP NL MU YP SL KI SE

Pittosporum procumbens Hook. = *Billardiera procumbens**Pittosporum roeanum* Putterl. = *Pittosporum phylliraeoides* var. *microcarpa**Pittosporum salicinum* Lindley = *Pittosporum phylliraeoides* var. *microcarpa***Pittosporum tenuifolium* Sol. ex Gaertner - not in S.Aust.**Pittosporum undulatum* Vent. - SL*Pittosporum undulatum* Vent. ssp. *emmettii* W.M.Curtis = *Pittosporum undulatum**Pronaya ericoides* (Lindley)Walp. = *Billardiera procumbens**Pronaya lanceolata* Turcz. = *Sollya heterophylla**Pronaya muelleriana* Turcz. = *Billardiera versicolor**Rhytidoporum procumbens* (Hook.)F.Muell. = *Billardiera procumbens**Rhytidoporum stuartianum* F.Muell. ex Hook.f. = *Billardiera procumbens**Sollya angustifolia* Lindley = *Sollya heterophylla**Sollya erecta* C.R.P.Andrews = *Sollya heterophylla**Sollya fusiformis* (Labill.)Briq. = *Sollya heterophylla**Sollya fusiformis* Peyer = *Sollya heterophylla***Sollya heterophylla* Lindley - SL*Sollya heterophylla* Lindley var. *angustifolia* Benth. = *Sollya heterophylla**Sollya linearis* Lindley = *Sollya heterophylla**Sollya salicifolia* Marnock = *Sollya heterophylla**Xerosollya gilbertii* Turcz. = *Sollya heterophylla***91.177 ROSACEAE***Acaena agnipila* Gand. var. *aequispina* Orch. - SL SE*Acaena agnipila* Gand. var. *agnipila* - SL*Acaena agnipila* Gand. var. *protenta* Orch. - SL*Acaena agnipila* Gand. var. *tenuispica* (Bitter)Orch. - SL*Acaena* × *anserovina* Orch. - FR NL SL KI SE*Acaena echinata* Nees var. *echinata* - EP NL YP SL KI*Acaena echinata* Nees var. *retrorsumpilosa* (Bitter)Orch. - FR EP NL MU YP SL KI*Acaena echinata* Nees var. *robusta* Orch. - EP SL*Acaena echinata* Nees var. *subglabricalyx* (Bitter)Orch. - YP SL SE*Acaena echinata* Nees var. *tylacantha* Orch. - EP YP SL*Acaena novae-zelandiae* Kirk - EP MU SL KI SE*Acaena ovina* Cunn. ssp. *capitulata* Bitter var. *subglabricalyx* Bitter =*Acaena echinata* var. *subglabricalyx**Acaena ovina* Cunn. ssp. *maxima* Bitter var. *retrorsumpilosa* Bitter =*Acaena echinata* var. *retrorsumpilosa**Acaena ovina* Cunn. var. *velutina* Orchard - YP SL*Acaena ovina* Cunn. ssp. *monachaena* Bitter var. *tenuispica* Bitter =*Acaena agnipila* var. *tenuispica**Acaena ovina* sensu J.Black (1948), partly = *Acaena* × *anserovina**Acaena ovina* sensu J.Black (1948), partly = *Acaena agnipila* var. *agnipila**Acaena ovina* sensu J.Black (1948), partly = *Acaena echinata* var. *echinata**Acaena sanguisorbae* (L.f.)Vahl = *Acaena novae-zelandiae**Alchemilla arvensis* (L.)Scop. = *Aphanes arvensis**Alchemilla arvensis* sensu J.Black (1948) = *Aphanes australiana**Alchemilla australiana* Rothm. = *Aphanes australiana**Alchemilla microcarpa* Boiss. & Reuter = *Aphanes microcarpa*

91.177 ROSACEAE (contd)

- Amygdalus persica* L. = *Prunus persica* var. *persica*
Amygdalus persica L. var. *nectarina* R.Br. = *Prunus persica* var. *nectarina*
Ancistrum anserinaefolium Forster & Forster f. = *Acaena novae-zelandiae*
Ancistrum sanguisorbae L.f. = *Acaena novae-zelandiae*
 **Aphanes arvensis* L. - ?not in S.Aust.
Aphanes arvensis sensu J.Black (1948) = *Aphanes australiana*
Aphanes australiana (Rothm.) Rothm. - EP NL MU YP SL KI SE
 **Aphanes microcarpa* (Boiss. & Reuter) Rothm. - ?SL ?SE
 **Cotoneaster glaucophyllus* Franchet - ?SL
 **Cotoneaster pannosa* Franchet - SL
 **Cotoneaster simonsii* Bak. - SL
 **Crataegus azarolus* L. - SL
Crataegus azarolus L. var. *sinaica* (Boiss.) Lange = *Crataegus sinaica*
 **Crataegus monogyna* Jacq. - NL SL SE
Crataegus oxyacantha L. = *Crataegus monogyna*
 **Crataegus sinaica* Boiss. - SL
 **Cydonia oblonga* Miller - NL SL
Cydonia vulgaris Pers. = *Cydonia oblonga*
 **Malus sylvestris* (L.) Miller - FR MU SL
Mespilus monogyna (Jacq.) All. = *Crataegus monogyna*
 **Potentilla anserina* L. - SL SE
 **Potentilla reptans* L. - SL
Poterium polygamum Waldst. & Kitaib. = *Sanguisorba minor* ssp. *muricata*
Poterium sanguisorba sensu J.Black (1948) = *Sanguisorba minor* ssp. *muricata*
 **Prunus armeniaca* L. - NL MU SL
 **Prunus cerasifera* Ehrh. - FR NL MU SL
 **Prunus domestica* L. ssp. *domestica* - FR NL SL
 **Prunus domestica* L. ssp. *insititia* (L.) Kirschner - SL
 **Prunus dulcis* (Miller) D.A. Webb - FR EP NL SL
 **Prunus laurocerasus* L. - SL
 **Prunus persica* (L.) Batsch var. *nectarina* (R.Br.) Maxim. - FR NL MU SL
 **Prunus persica* (L.) Batsch var. *persica* - FR MU SL
 **Pyrus communis* L. - FR EP NL SL
Pyrus malus L. var. *sylvestris* L. = *Malus sylvestris*
 **Rosa canina* L. - EP NL SL SE
 **Rubus* \times *loganobaccus* L.Bailey - EP SL
 **Rosa rubiginosa* L. - EP NL MU SL KI SE
Rubus aff. *fuscus* sensu H.Eichler (1965) = *Rubus* aff. *mucronulatus*
Rubus aff. *koehleri* sensu H.Eichler (1965) = *Rubus* \times *loganobaccus*
 **Rubus* aff. *mucronulatus* Boreau - SL
 **Rubus discolor* Weihe & Nees - NL SL
Rubus fruticosus L. - not in S.Aust.
Rubus hillii F.Muell. - not in S.Aust.
Rubus hillii sensu H.Eichler (1965) = *Rubus moluccanus*
 **Rubus koehleri* Weihe & Nees - SL
 **Rubus laciniatus* Willd. - SL
 **Rubus moluccanus* L. - SL
 **Rubus mucronulatus* Boreau - SL
Rubus parvifolius L. - SL KI SE
Rubus triphyllus Thunb. = *Rubus parvifolius*
 **Rubus ulmifolius* Schott cv. *inermis* - SL
 **Rubus ulmifolius* Schott var. *ulmifolius* - EP SL SE
 **Sanguisorba minor* Scop. ssp. *muricata* Briq. - EP NL MU YP SL SE

91.182 LEGUMINOSAE

- Acacia acanthoclada* F.Muell. - NU EP MU
Acacia acinacea Lindley - EP NL YP KI SE
Acacia acinacea sensu Whibley (1986) = *Acacia triquetra*
Acacia aff. *gonophylla* Benth. - NU
Acacia aff. *papyrocarpa* Benth. - NW FR
Acacia aff. *steedmannii* Maiden & Blakely = *Acacia cretacea*
Acacia alcockii Maslin & Whibley - EP
Acacia anceps DC. - NU EP YP
Acacia anceps DC. var. *angustifolia* Benth. = *Acacia anceps*

91.182 LEGUMINOSAE (contd)

- Acacia aneura* F.Muell. ex Benth. - NW LE NU GT FR EA EP MU
Acacia aneura F.Muell. ex Benth. var. *latifolia* J.Black = *Acacia aneura*
Acacia aneura F.Muell. ex Benth. var. *stenocarpa* Benth. = *Acacia brachystachya*
Acacia arabica (Lam.)Willd. = *Acacia nilotica*
Acacia araneosa Whibley - FR
Acacia argyrophylla Hook. - FR EA NL ?EP MU YP SL
Acacia armata R.Br. ex Aiton = *Acacia paradoxa*
**Acacia baileyana* F.Muell. - NL SL SE
Acacia barattensis J.Black - FR EA
Acacia basedowii Maiden - NW
Acacia basedowii Maiden var. *viridis* Blakely = *Acacia basedowii*
Acacia beckleri Tind. - GT FR EA EP MU
Acacia brachybotrya Benth. - NU ?FR EP NL MU YP SL KI SE
Acacia brachybotrya Benth. var. *argyrophylla* Benth. = *Acacia argyrophylla*
Acacia brachystachya Benth. - NW LE NU GT FR EA EP
Acacia burkittii F.Muell. ex Benth. - NW NU GT FR EA EP MU
Acacia bynoeana Benth. = *Acacia wilhelmiana*
Acacia bynoeana Benth. var. *latifolia* J.Black = *Acacia wilhelmiana*
Acacia calamifolia Sweet ex Lindley - FR EA EP NL MU YP SL KI SE
Acacia calamifolia Sweet ex Lindley var. *euthycarpa* J.Black = *Acacia calamifolia*
Acacia calamifolia sensu Whibley (1986), partly = *Acacia nematophylla*
Acacia calcicola Forde & Ising - NW LE GT
Acacia cambagei R.Baker - LE
Acacia cana Maiden - not in S.Aust.
Acacia carnei Maiden - ?NU FR EA
Acacia cibaria F.Muell., partly = *Acacia brachystachya*
Acacia clavata Schldl. = *Acacia montana*
Acacia clivicola Pedley = *Acacia stowardii*
Acacia colletioides Benth. - NW NU GT EA EP MU YP SE
Acacia colletioides Benth. var. *nyssophylla* (F.Muell.)Benth. = *Acacia nyssophylla*
Acacia confluens Maiden & Blakely - LE FR
Acacia continua Benth. - FR EA EP NL MU SL
Acacia coriacea DC. - NW LE
Acacia coronalis J.Black = *Acacia victoriae* ssp. *victoriae*
Acacia cretacea Maslin & Whibley - EP
Acacia cyanophylla Lindley = *Acacia saligna*
Acacia cyclophylla Schldl. = *Acacia acinacea*
Acacia cyclopis Cunn. = *Acacia cyclops*
Acacia cyclops Cunn. ex Don - NU FR EP NL YP SL KI
Acacia cyperophylla F.Muell. ex Benth. - LE
**Acacia dealbata* Link - SL SE
**Acacia decurrens* (Wendl.)Willd. - SL SE
Acacia decurrens (Wendl.)Willd. forma *normalis* Benth. = *Acacia decurrens*
Acacia decurrens (Wendl.)Willd. var. *mollis* Lindley = *Acacia mearnsii*
Acacia dictyophleba F.Muell. - NW LE
Acacia dodonaeifolia Willd. ex Sprengel - EP YP SL KI SE
Acacia doratoxylon Cunn. - not in S.Aust.
Acacia enterocarpa R.V.Smith - EP YP SE
Acacia erinacea Benth. - NU
Acacia estrophiolata F.Muell. - NW LE
Acacia euthycarpa (J.Black)J.Black = *Acacia calamifolia*
Acacia farinosa Lindley - EP MU YP SL KI SE
Acacia farnesiana (L.)Willd. - LE EA
Acacia frumentacea Tate = *Acacia murrayana*
Acacia georginae Bailey - LE
Acacia gilesiana F.Muell. - NW NU
Acacia gillii Maiden & Blakely - EP
Acacia gladiiformis Cunn. ex Benth. - not in S.Aust.
Acacia gladiiformis sensu J.Black (1948) = *Acacia beckleri*
Acacia glandulicarpa Reader - NL
Acacia gonophylla Benth. var. *crassifolia* Benth. - not in S.Aust.
Acacia gracilifolia Maiden & Blakely - FR NL
Acacia × *grayana* J.H.Willis - ?EP MU YP SE
Acacia gunnii Benth. - SL

91.182 LEGUMINOSAE (contd)

- Acacia hakeoides* Cunn. ex Benth. - NU FR EA EP NL MU YP SL SE
Acacia halliana Maslin - EP NL MU YP SL SE
Acacia havilandii Maiden - FR EA EP
Acacia helmsiana Maiden - NW
Acacia imbricata F.Muell. - EP
Acacia iteaphylla F.Muell. ex Benth. - FR EP NL
Acacia jennerae Maiden - NW LE
Acacia kempeana F.Muell. - NW LE NU GT FR EP
Acacia leiophylla Benth. - EP YP KI SE
Acacia lenticellata F.Muell. = *Acacia farnesiana*
Acacia leptopetala Benth. = *Acacia murrayana*
Acacia leptophylla F.Muell. = *Acacia wilhelmiana*
Acacia ligulata Cunn. ex Benth. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Acacia lineata Cunn. ex Don - MU YP
Acacia linophylla sensu J.Black (1948) = *Acacia ramulosa*
Acacia loderi Maiden - LE EA MU
Acacia longifolia (Andrews) Willd. var. *longifolia* - EP NL YP SL KI SE
Acacia longifolia (Andrews) Willd. var. *sophorae* F.Muell. - EP YP SL KI SE
Acacia lophantha Willd. = *Albizia lophantha*
Acacia maitlandii F.Muell. - NW
Acacia mearnsii De Wild. - EP SL SE
Acacia melanoxylon R.Br. - EP NL SL SE
Acacia menzeldii J.Black - FR MU
Acacia merrallii F.Muell. - NU EP YP
Acacia microcarpa F.Muell. - EP NL MU YP SL SE
Acacia microcarpa F.Muell. var. *linearis* Whibley (1980) = *Acacia* × *grayana*
Acacia microcarpa sensu Whibley (1986), partly = *Acacia halliana*
Acacia mitchellii Benth. - SE
Acacia mollissima Willd. = *Acacia mearnsii*
Acacia montana Benth. - EP NL MU
Acacia muelleri Benth. = *Acacia anceps*
Acacia murrayana F.Muell. ex Benth. - NW LE GT EA
Acacia myrtifolia (Smith) Willd. - EP NL MU YP SL KI SE
Acacia myrtifolia (Smith) Willd. var. *angustifolia* Benth. = *Acacia myrtifolia*
Acacia nematophylla F.Muell. ex Benth. - EP YP SL
**Acacia nilotica* (L.) Delile - LE
Acacia notabilis F.Muell. - ?GT FR EP NL MU YP SL SE
Acacia notabilis F.Muell. var. *validinervia* (Maiden & Blakely) J.Black = *Acacia validinervia*
Acacia nyssophylla F.Muell. - NW LE NU GT FR EA EP NL MU YP
Acacia obliqua Cunn. ex Benth. = *Acacia acinacea*
Acacia olgana Maconochie - NW
Acacia oswaldii F.Muell. - NW LE NU GT FR EA EP NL MU YP SL
Acacia oxycedrus Sieber ex DC. - SE
Acacia pachyacra Maiden & Blakely - NW
Acacia papyrocarpa Benth. - NW LE NU GT FR EP
Acacia paradoxa DC. - FR EA EP NL MU YP SL KI SE
Acacia patens F.Muell. ex Benth. = *Acacia maitlandii*
Acacia petiolaris Lehm. = *Acacia pycnantha*
Acacia peuce F.Muell. - not in S.Aust.
Acacia pickardii Tind. - LE
Acacia pinguiifolia J.Black - EP SL
**Acacia podalyriifolia* Cunn. ex G.Don - SL
Acacia prainii Maiden - NW NU GT
Acacia prainii Maiden var. *linearis* Maiden = *Acacia prainii*
Acacia pravifolia F.Muell. - FR EA NL
Acacia prolifera J.Black = *Acacia prainii*
Acacia pruinocarpa Tind. - NW
Acacia pycnantha Benth. - FR EA EP NL MU YP SL KI SE
Acacia pycnantha Benth. var. *angustifolia* Benth. = *Acacia gillii*
Acacia quornensis J.Black - FR EP
Acacia ramulosa W.Fitzg. - NW LE NU GT EP
Acacia randelliana sensu J.Black (1948) = *Acacia burkittii*
Acacia retinodes Schldl. var. *angustifolia* (Benth.) J.Black = *Acacia gillii*
Acacia retinodes Schldl. var. *gillii* Maiden = *Acacia gillii*

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91.182 LEGUMINOSAE (contd)

- Acacia retinodes* Schldl. var. *oraria* J.Black ex Eardley = *Acacia leiophylla*
Acacia retinodes Schldl. var. *retinodes* - EP NL MU SL KI SE
Acacia retinodes Schldl. var. *uncifolia* J.Black - EP SL KI
Acacia rhetinocarpa J.Black - EP MU YP SL
Acacia rhetinodes sensu J.Black (1924), partly = *Acacia retinodes* var. *retinodes*
Acacia rhetinodes sensu J.Black (1924), partly = *Acacia retinodes* var. *uncifolia*
Acacia rhigiophylla F.Muell. ex Benth. - EP MU
Acacia rhodophylla Maslin - ?LE GT
Acacia rigens Cunn. ex Don - LE NU GT FR EP NL MU YP SL SE
Acacia rivalis J.Black - LE FR
Acacia rotundifolia Hook. = *Acacia acinacea*
Acacia rubida Cunn. - not in S.Aust.
Acacia rubida sensu J.H.Willis (1972), partly = *Acacia leiophylla*
Acacia rupicola F.Muell. ex Benth. - FR EP NL MU YP SL KI SE
Acacia salicina Lindley - LE GT FR EA EP NL MU SL
Acacia salicina Lindley var. *minor* F.Muell. = *Acacia ligulata*
Acacia salicina Lindley var. *varians* (Benth.) Benth. = *Acacia salicina*
Acacia salicina Lindley var. *wayae* Maiden = *Acacia ligulata*
Acacia salicina Lindley var. *wayi* Maiden = *Acacia ligulata*
Acacia salicina sensu Benth. (1864) = *Acacia ligulata*
**Acacia saligna* (Labill.) H.L.Wendl. - EP MU YP SL KI SE
Acacia sclerophylla Lindley var. *lissophylla* J.Black - EP MU YP
Acacia sclerophylla Lindley var. *sclerophylla* - EP NL MU YP SL SE
Acacia sentis F.Muell. = *Acacia victoriae* ssp. *victoriae*
Acacia sessiliceps sensu Whibley (1980) = *Acacia oswaldii*
Acacia sibirica S.Moore = *Acacia kempeana*
Acacia signata sensu J.Black (1948) = *Acacia olgana*
Acacia sophorae sensu Whibley (1980) = *Acacia longifolia* var. *sophorae*
Acacia sowdenii Maiden = *Acacia papyrocarpa*
Acacia spilleriana J.E.Brown - NL
Acacia spinescens Benth. - ?FR EP NL MU YP SL KI SE
Acacia stenophylla Cunn. ex Benth. - LE GT MU
Acacia stowardii Maiden - NW LE GT FR EP
Acacia stricta (Andrews) Willd. - SE
Acacia strongylophylla F.Muell. - NW
Acacia suaveolens (Smith) Willd. - SE
Acacia sublanata sensu J.Black (1924) = *Acacia pravifolia*
Acacia symonii Whibley - NW
Acacia tarculensis J.Black - GT EP
Acacia tenuior Maiden - NW
Acacia tetragonophylla F.Muell. - NW LE NU GT FR EA EP
Acacia trineura F.Muell. - FR SL SE
Acacia triquetra Benth. - EP YP KI
Acacia ulicina Meissner var. *oxyclada* F.Muell. ex Tate = *Acacia basedowii*
Acacia validinervia Maiden & Blakely - NW
Acacia varians Benth. = *Acacia salicina*
Acacia verniciflua Cunn. - SL
Acacia verticillata (L'Hér.) Willd. - FR NL SL KI SE
Acacia victoriae Benth. ssp. *arida* Pedley - NW LE
Acacia victoriae Benth. ssp. *victoriae* - NW LE NU GT FR EA EP NL MU SL
Acacia viscosa Schrader ex H.L.Wendl. = *Acacia dodonaeifolia*
Acacia vomeriformis Cunn. = *Acacia gunnii*
Acacia wattiana F.Muell. ex Benth. - FR EP NL
Acacia whanii F.Muell. = *Acacia farinosa*
Acacia wilhelmiana F.Muell. - GT FR EA EP NL MU YP
Aeschynomene aculeata Schreber = *Sesbania aculeata*
Aeschynomene cannabina Retz. = *Sesbania cannabina* var. *cannabina*
Aeschynomene indica L. - LE
Aeschynomene sesban L. = *Sesbania sesban*
Albizia distachya (Vent.) Macbr. = *Albizia lophantha*
**Albizia lophantha* (Willd.) Benth. - FR EP YP SL SE
Albizia lophantha (Willd.) Benth. = *Albizia lophantha*
Alhagi camelorum Fischer = *Alhagi maurorum*
**Alhagi maurorum* Medikus - NL MU YP SE

91.182 LEGUMINOSAE (contd)

- Alhagi pseudalhagi* (M.Bieb.) Desv. = *Alhagi maurorum*
- **Anthyllis barba-jovis* L. - EP SL
- Aotus ericoides* sensu H.Eichler (1965) = *Aotus subspinescens*
- Aotus subspinescens* (Benth.) Crisp - GT EP MU YP SL SE
- Aotus villosa* (Andrews) Smith var. *subspinescens* Benth. = *Aotus subspinescens*
- Aotus villosa* sensu J.Black (1948) = *Aotus subspinescens*
- **Astragalus hamosus* L. - FR EA EP
- **Astragalus sesameus* L. - FR EA MU
- Bauhinia carronii* F.Muell. = *Lysiphyllum carronii*
- Bauhinia carronii* sensu J.Black (1948) = *Lysiphyllum gilvum*
- Bauhinia cunninghamii* Benth. forma *gilva* Bailey = *Lysiphyllum gilvum*
- Bossiaea aculeata* F.Muell. = *Templetonia aculeata*
- Bossiaea battii* (F.Muell.) Tate = *Templetonia battii*
- Bossiaea cinerea* R.Br. - SE
- Bossiaea cordifolia* Sweet = *Bossiaea cinerea*
- Bossiaea ensata* Sieber ex DC. - EP
- Bossiaea ovata* (Andrews) Smith = *Bossiaea prostrata*
- Bossiaea prostrata* R.Br. - EP SL SE
- Bossiaea riparia* Cunn. - not in S.Aust.
- Bossiaea stenophylla* F.Muell. = *Templetonia stenophylla*
- Bossiaea sulcata* Meissner = *Templetonia sulcata*
- Bossiaea tenuicaulis* Graham = *Bossiaea cinerea*
- Bossiaea walkeri* F.Muell. - NU GT EP MU SL
- Brachysema chambersii* (F.Muell.) F.Muell. ex Benth. =
Leptosema chambersii ssp. *chambersii*
- Callistichys lanceolata* Vent. = *Oxylobium lanceolatum*
- Cassia artemisioides* Gaudich. - NW LE NU GT FR EA EP
- Cassia barclayana* Sweet - LE NU NL
- Cassia desolata* F.Muell. var. *desolata* - NW LE FR
- Cassia desolata* F.Muell. var. *involucrata* (J.Black) J.Black = *Cassia helmsii*
- Cassia desolata* F.Muell. var. *planipes* (J.Black) Symon - LE
- Cassia eremophila* R.Br. = *Cassia nemophila* var. *nemophila*
- Cassia glutinosa* DC. - NW
- Cassia helmsii* Symon - NW LE
- Cassia nemophila* Cunn. ex J.Vogel var. *coriacea* (Benth.) Symon -
 NW LE NU GT FR EA EP NL MU YP
- Cassia nemophila* Cunn. ex J.Vogel var. *nemophila* -
 NW LE NU GT FR EA EP NL MU YP SL SE
- Cassia nemophila* Cunn. ex J.Vogel var. *platypoda* (R.Br.) Benth. -
 NW LE NU GT FR EA EP NL MU YP SL
- Cassia nemophila* Cunn. ex J.Vogel var. *zygophylla* (Benth.) Benth. - NW LE
- Cassia notabilis* F.Muell. - LE
- Cassia oligophylla* F.Muell. - NW LE
- Cassia phyllodinea* R.Br. - LE GT FR EA
- Cassia planitiicola* Domin - NW LE GT EP
- Cassia platypoda* R.Br. = *Cassia nemophila* var. *platypoda*
- Cassia pleurocarpa* F.Muell. var. *pleurocarpa* - NW LE GT FR EP
- Cassia pruinosa* F.Muell. - LE
- Cassia sophora* sensu J.Black (1948) = *Cassia planitiicola*
- Cassia sturtii* R.Br. - NW LE GT FR EA
- Cassia sturtii* R.Br. var. *coriacea* Benth. = *Cassia nemophila* var. *coriacea*
- Cassia sturtii* R.Br. var. *involucrata* J.Black = *Cassia helmsii*
- Cassia sturtii* R.Br. var. *planipes* J.Black = *Cassia desolata* var. *planipes*
- Cassia sturtii* R.Br. var. *tomentosa* Benth. = *Cassia helmsii*
- Cassia zygophylla* Benth. = *Cassia nemophila* var. *zygophylla*
- Caulinia prorepens* F.Muell. = *Kennedia prorepens*
- Chamaecytisus proliferus* (L.f.) Link = *Cytisus proliferus*
- Clianthus dampieri* Cunn. = *Clianthus formosus*
- Clianthus formosus* (Don) Ford & Vick. - NW LE NU GT FR EA EP NL
- Clianthus oxleyi* Cunn. = *Clianthus formosus*
- Clianthus speciosus* (Don) Asch. & Graebner = *Clianthus formosus*
- Clidanthra psoraleoides* R.Br. = *Glycyrrhiza acanthocarpa*
- Colutea frutescens* L. = *Sutherlandia frutescens*
- Colutea novae-hollandiae* J.Woodw. = *Clianthus formosus*

91.182 LEGUMINOSAE (contd)*Crotalaria cunninghamii* R.Br. - NW LE GT FR EP*Crotalaria cunninghamii* R.Br. var. *trifoliolata* J.Black = *Crotalaria cunninghamii**Crotalaria dissitiflora* Benth. - not in S.Aust.*Crotalaria dissitiflora* Benth. var. *eremaea* (F.Muell.)Benth. =*Crotalaria eremaea* ssp. *eremaea**Crotalaria dissitiflora* sensu J.Black (1948) = *Crotalaria eremaea* ssp. *eremaea**Crotalaria eremaea* F.Muell. ssp. *eremaea* - LE GT FR EA*Crotalaria eremaea* F.Muell. ssp. *strehlowii* (Pritzel)A.Lee - NW LE GT*Crotalaria frifoliastrium* sensu Benth. (1864) = *Crotalaria medicaginea**Crotalaria medicaginea* Lam. - NW LE*Crotalaria mitchellii* Benth. var. *tomentosa* Ewart = *Crotalaria smithiana**Crotalaria mitchellii* sensu J.Black (1948) = *Crotalaria smithiana**Crotalaria novae-hollandiae* DC. forma *lasiophylla* Benth. =*Crotalaria novae-hollandiae* ssp. *lasiophylla**Crotalaria novae-hollandiae* DC. ssp. *lasiophylla* (Benth.)A.Lee - LE GT*Crotalaria novae-hollandiae* DC. ssp. *novae-hollandiae* - not in S.Aust.*Crotalaria novae-hollandiae* sensu J.Black (1948) =*Crotalaria novae-hollandiae* ssp. *lasiophylla**Crotalaria smithiana* A.Lee - LE*Crotalaria strehlowii* Pritzel = *Crotalaria eremaea* ssp. *strehlowii**Cyclogyne canescens* Benth. ex Lindley = *Swainsona canescens* var. *canescens**Cyclogyne procumbens* F.Muell. = *Swainsona procumbens**Cyclogyne swainsonioides* Benth. = *Swainsona swainsonioides**Cytisus canariensis* sensu J.Black (1948) = *Genista monspessulana**Cytisus candicans* (L.)DC. = *Genista monspessulana**Cytisus linifolius* (L.)Lam. = *Genista linifolia**Cytisus maderensis* (Webb & Berth.)Masf. - not in S.Aust.*Cytisus monspessulanus* L. = *Genista monspessulana**Cytisus multiflorus* sensu J.Black (1948) = *Retama raetam***Cytisus proliferus* L.f. - NL MU SL SE*Cytisus proliferus* sensu J.Black (1948) = *Retama raetam***Cytisus scoparius* (L.)Link - NL SL*Daviesia acanthoclona* F.Muell. = *Daviesia benthamii* ssp. *benthamii**Daviesia aphylla* F.Muell. ex Benth. = *Daviesia benthamii* ssp. *benthamii**Daviesia arenaria* Crisp - FR EP NL MU SL KI SE*Daviesia arthropoda* F.Muell. - NU*Daviesia asperula* Crisp ssp. *asperula* - EP KI*Daviesia asperula* Crisp ssp. *obliqua* Crisp - EP*Daviesia benthamii* Meissner ssp. *benthamii* - NU EP MU*Daviesia benthamii* Meissner ssp. *humilis* Crisp - FR EP NL MU YP SL KI SE*Daviesia brevifolia* Lindley - NU EP NL MU SL KI SE*Daviesia corymbosa* Smith = *Daviesia mimosoides* var. *mimosoides**Daviesia corymbosa* sensu J.Black (1948) = *Daviesia leptophylla**Daviesia denudata* Vent. = *Viminaria juncea**Daviesia egena* F.Muell. = *Templetonia egena**Daviesia genistifolia* Benth., partly = *Daviesia benthamii* ssp. *benthamii**Daviesia genistifolia* Cunn. ex Benth. - FR EA EP NL MU YP SL KI SE*Daviesia genistifolia* sensu J.Black (1948), partly = *Daviesia asperula* ssp. *asperula**Daviesia genistifolia* sensu J.Black (1948), partly = *Daviesia benthamii* ssp. *humilis**Daviesia incrassata* sensu J.Black (1948) = *Daviesia asperula* ssp. *asperula**Daviesia leptophylla* Cunn. ex Don - FR EP NL MU SL KI*Daviesia mimosoides* R.Br. var. *mimosoides* - FR EP NL MU SL KI*Daviesia mimosoides* R.Br. sensu Crisp (1983) = *Daviesia leptophylla**Daviesia nudula* J.Black = *Daviesia benthamii* ssp. *benthamii**Daviesia pectinata* Lindley - EP SL MU*Daviesia polyphylla* sensu J.Black (1948), partly = *Daviesia asperula* ssp. *obliqua**Daviesia polyphylla* sensu J.Black (1948), partly = *Daviesia asperula* ssp. *asperula**Daviesia ruscifolia* Cunn. ex Benth. = *Daviesia ulicifolia**Daviesia stricta* Crisp - FR EA*Daviesia ulicifolia* Andrews - NW NU GT FR EP MU YP SL KI SE*Daviesia ulicina* Smith = *Daviesia ulicifolia**Daviesia ulicina* Smith var. *ruscifolia* (Cunn. ex Benth.)J.Black = *Daviesia ulicifolia**Daviesia ulicina* Smith var. *ruscifolia* sensu J.Black (1924) = *Daviesia arenaria**Daviesia virgata* Cunn. ex Hook. = *Daviesia leptophylla*

91.182 LEGUMINOSAE (contd)

- Dillwynia cinerascens* R.Br. - SE
Dillwynia ericifolia Smith forma *glaberrima* (Smith) Benth. = *Dillwynia glaberrima*
Dillwynia ericifolia Smith var. *peduncularis* sensu J.Black (1948) = *Dillwynia glaberrima*
Dillwynia floribunda sensu J.Black (1948) = *Dillwynia sericea*
Dillwynia glaberrima Smith - EP SL KI SE
Dillwynia hispida Lindley - EP NL MU SL KI SE
Dillwynia patula (F.Muell.) F.Muell. = *Dillwynia uncinata*
Dillwynia peduncularis sensu J.Black (1948) = *Dillwynia glaberrima*
Dillwynia sericea Cunn. - SL KI SE
Dillwynia uncinata (Turcz.) J.Black - EP MU YP SE
 **Dipogon lignosus* (L.) Verdc. - EP YP SL KI SE
Dolichos lignosus L. = *Dipogon lignosus*
Donia formosa Don = *Clianthus formosus*
Donia speciosa Don = *Clianthus formosus*
Ervum hirsutum L. = *Vicia hirsuta*
 **Erythrina acanthocarpa* E.Meyer - MU
Erythrina biloba F.Muell. = *Erythrina vespertilio*
Erythrina vespertilio Benth. - LE
Erythrina vespertilio Benth. var. *typica* Domin = *Erythrina vespertilio*
Eutaxia diffusa F.Muell. = *Eutaxia microphylla* var. *diffusa*
Eutaxia empetrifolia Schltr. = *Eutaxia microphylla* var. *microphylla*
Eutaxia microphylla (R.Br.) J.Black var. *diffusa* (F.Muell.) Court -
 FR EP NL MU YP SL SE
Eutaxia microphylla (R.Br.) J.Black var. *microphylla* - NU FR EP NL MU YP SL KI SE
Eutaxia patula F.Muell. = *Dillwynia uncinata*
Eutaxia sparsifolia F.Muell. = *Dillwynia uncinata*
Eutaxia uncinata Turcz. = *Dillwynia uncinata*
Galactia tenuiflora (Klein ex Willd.) Wight & Arn. - ?LE
Galega colutea Burman f. = *Indigofera colutea*
Gastrolobium elachistum F.Muell. = *Pultenaea elachista*
Gastrolobium grandiflorum F.Muell. - not in S.Aust.
Genista candicans L. = *Genista monspessulana*
 **Genista linifolia* L. - EP NL SL
Genista maderensis (Webb & Berth.) Lowe = *Cytisus maderensis*
Genista maderensis sensu H.Eichler (1965) = *Genista monspessulana*
Genista monosperma (L.) Lam. = *Retama monosperma*
 **Genista monspessulana* (L.) L.Johnson - EP NL MU SL SE
Genista raetam Forsskal = *Retama raetam*
Glycine canescens F.J.Herm. - NW LE GT FR EA MU
Glycine clandestina Wendl. var. *clandestina* - SE
Glycine clandestina Wendl. var. *sericea* Benth. - NW LE NU GT FR EP NL MU YP SL
Glycine comptoniana Andrews = *Hardenbergia comptoniana*
Glycine falcata Benth. - not in S.Aust.
Glycine latrobeana (Meissner) Benth. - NL SL SE
Glycine microphylla (Benth.) Tind. - not known
Glycine sericea (F.Muell.) Benth. = *Glycine canescens*
Glycine sericea (F.Muell.) Benth. var. *orthotricha* J.Black = *Glycine canescens*
Glycine tabacina (Labill.) Benth. - SE
Glycine tenuiflora Klein ex Willd. = *Galactia tenuiflora*
Glycine tomentella Hayata - ?not in S.Aust.
Glycine tomentosa Benth. = *Glycine tomentella*
Glycine violacea Schneev. = *Hardenbergia violacea*
Glycyrrhiza acanthocarpa (Lindley) J.Black - GT EA NL MU
 **Glycyrrhiza glabra* L. - NL SL
Glycyrrhiza psoraleoides (R.Br.) Benth. = *Glycyrrhiza acanthocarpa*
Gompholobium ecostatum Kuchel - EP SL KI SE
Gompholobium minus sensu J.Black (1948) = *Gompholobium ecostatum*
Goodia lotifolia Salisb. var. *lotifolia* - FR EA EP MU YP SL KI SE
Goodia lotifolia Salisb. var. *pubescens* (Sims) H.B.Williamson - EP SE
Goodia medicaginea F.Muell. = *Goodia lotifolia* var. *lotifolia*
Goodia pubescens Sims = *Goodia lotifolia* var. *pubescens*
 **Hardenbergia comptoniana* (Andrews) Benth. - ?SL
Hardenbergia monophylla (Vent.) Benth. = *Hardenbergia violacea*
Hardenbergia violacea (Schneev.) Stearn - FR EA EP NL MU YP SL KI SE

91.182 LEGUMINOSAE (contd)

- Hedysarum alhagi* L. = *Alhagi maurorum*
Hedysarum linifolium L.f. = *Indigofera linifolia*
Hedysarum pseudalhagi M.Bieb. = *Alhagi maurorum*
Hovea heterophylla Cunn. ex Hook.f. - SE
Hovea lanceolata Sims = *Hovea longifolia* var. *longifolia*
Hovea longifolia R.Br. var. *lanceolata* (Sims) Benth. = *Hovea longifolia* var. *longifolia*
Hovea longifolia R.Br. var. *longifolia* - FR NL
Indigofera acanthocarpa Lindley = *Glycyrrhiza acanthocarpa*
Indigofera australis Willd. var. *angulata* Benth. = *Indigofera australis* var. *australis*
Indigofera australis Willd. var. *australis* - FR EA EP NL SL SE
Indigofera australis Willd. var. *minor* Benth. = *Indigofera australis* var. *australis*
Indigofera basedowii E.Pritzl ssp. *basedowii* - NW
Indigofera basedowii E.Pritzl ssp. *longibractea* (J.Black) Peter G.Wilson - NW FR EA
Indigofera brevidens Benth. var. *brevdens* - NW LE NU GT
Indigofera colutea (Burman f.) Merr. - LE
Indigofera dominii H.Eichler = *Indigofera linnaei*
Indigofera enneaphylla L. = *Indigofera linnaei*
Indigofera georgei E.Pritzl - NW LE
Indigofera helmsii Peter G.Wilson - NW GT FR EP
Indigofera leucotricha E.Pritzl - NW LE FR
Indigofera linifolia (L.f.) Retz. - LE
Indigofera linnaei Ali - NW LE
Indigofera longibractea J.Black = *Indigofera basedowii* ssp. *basedowii*
Indigofera longibractea J.Black = *Indigofera basedowii* ssp. *longibractea*
Indigofera uncinata sensu Weber (1986) = *Indigofera helmsii*
Indigofera viscosa sensu J.Black (1948) = *Indigofera colutea*
Isotropis atropurpurea F.Muell. - not in S.Aust.
Isotropis centralis Maconochie - NW
Isotropis wheeleri F.Muell. ex Benth. - LE
Kennedia coccinea Vent. - not in S.Aust.
Kennedia comptoniana (Andrews) Link = *Hardenbergia comptoniana*
Kennedia monophylla Vent. = *Hardenbergia violacea*
**Kennedia nigricans* Lindley - SL
Kennedia prorepens (F.Muell.) F.Muell. - NW MU
Kennedia prostrata R.Br. - FR EP NL YP SL KI SE
Kennedia tabacina Labill. = *Glycine tabacina*
**Lathyrus latifolius* L. - ?NL SL
**Lathyrus sphaericus* Retz. - SL
**Lathyrus tingitanus* L. - SL
Leptocyanus sericeus F.Muell. = *Glycine canescens*
Leptolobium microphyllum Benth. = *Glycine microphylla*
Leptosema chambersii F.Muell. ssp. *chambersii* - NW
**Lotus angustissimus* L. - SL SE
Lotus australis Andrews - FR EA EP NL MU YP SL KI SE
Lotus australis Andrews var. *behrianus* Tate = *Lotus cruentus*
Lotus australis Andrews var. *behrii* S.Moore & Betcher = *Lotus cruentus*
Lotus australis Andrews var. *coccineus* F.Muell. = *Lotus cruentus*
Lotus australis Andrews var. *exstipulatus* J.Black = *Lotus cruentus*
Lotus australis Andrews var. *parviflorus* Benth. = *Lotus cruentus*
Lotus australis Andrews var. *pubescens* Benth. = *Lotus cruentus*
Lotus coccineus Schldl. = *Lotus cruentus*
Lotus corniculatus sensu J.Black (1948) = *Lotus uliginosus*
Lotus cruentus Court - NW LE NU GT FR EA EP NL MU SL
**Lotus hispidus* Desf. ex DC. (1805) - not in S.Aust.
Lotus hispidus Desf. ex DC. (1815) = *Lotus subbiflorus*
Lotus pedunculatus sensu H.Eichler (1965) = *Lotus uliginosus*
**Lotus subbiflorus* Lagasca - EP SL SE
**Lotus uliginosus* Schkuhr - EP NL MU SL SE
Lupinus angustifolius L. - not in S.Aust.
**Lupinus cosentinii* Guss. - EP NL MU SL SE
Lupinus digitatus sensu H.Eichler (1965) = *Lupinus cosentinii*
Lupinus hirsutus L. = *Lupinus micranthus*
Lupinus micranthus Guss. - not in S.Aust.
Lupinus pilosus sensu J.Black (1948) = *Lupinus cosentinii*

91.182 LEGUMINOSAE (contd)

- Lupinus varius* L. - not in S.Aust.
Lygos monosperma (L.)Boiss. = *Retama monosperma*
Lysiphyllum carronii (F.Muell.)Pedley - not in S.Aust.
Lysiphyllum gilvum (Bailey)Pedley - LE
Medicago apiculata Willd. = *Medicago polymorpha* var. *polymorpha*
 **Medicago arabica* (L.)Hudson - MU YP SL SE
Medicago caerulea Less. & Ledeb. = *Medicago sativa* ssp. *caerulea*
 **Medicago ciliaris* (L.)Krocker - ?SL
Medicago denticulata Willd. = *Medicago polymorpha* var. *polymorpha*
Medicago denticulata Willd. var. *brevispina* Benth. =
 Medicago polymorpha var. *polymorpha*
Medicago denticulata Willd. var. *vulgaris* Benth. =
 Medicago polymorpha var. *polymorpha*
Medicago hispida Gaertner = *Medicago polymorpha* var. *polymorpha*
Medicago hispida Gaertner var. *denticulata* Urban =
 Medicago polymorpha var. *polymorpha*
Medicago hispida Gaertner var. *hispida* = *Medicago polymorpha* var. *polymorpha*
Medicago hispida Gaertner var. *inermis* Urban = *Medicago polymorpha* var. *polymorpha*
Medicago hispida Gaertner var. *lappacea* (Desr.)Urban =
 Medicago polymorpha var. *polymorpha*
 **Medicago intertexta* (L.)Miller - ?SE
Medicago intertexta (L.)Miller var. *ciliaris* (L.)Heyn = *Medicago ciliaris*
 **Medicago laciniata* (L.)Miller - MU SL
Medicago lappacea Desr. = *Medicago polymorpha* var. *polymorpha*
 **Medicago littoralis* Rohde ex Lois. - EP NL MU YP SL SE
 **Medicago lupulina* L. - SL SE
Medicago maculata Sibth. = *Medicago arabica*
 **Medicago minima* (L.)Bartal. var. *minima* - FR EA EP NL MU YP SL SE
 **Medicago orbicularis* (L.)Bartal. - EP SL SE
Medicago polymorpha L. var. *apiculata* Ooststr. & Reichg. =
 Medicago polymorpha var. *polymorpha*
Medicago polymorpha L. var. *arabica* L. = *Medicago arabica*
Medicago polymorpha L. var. *brevispina* (Benth.)Heyn =
 Medicago polymorpha var. *polymorpha*
Medicago polymorpha L. var. *ciliaris* L. = *Medicago ciliaris*
Medicago polymorpha L. var. *intertexta* L. = *Medicago intertexta*
Medicago polymorpha L. var. *minima* L. = *Medicago minima* var. *minima*
 **Medicago polymorpha* L. var. *polymorpha* - LE NU GT FR EA EP YP SL SE
Medicago polymorpha L. var. *vulgaris* (Benth.)Shinn. =
 Medicago polymorpha var. *polymorpha*
 **Medicago praecox* DC. - FR EP MU SL SE
Medicago reticulata Benth. = *Medicago polymorpha* var. *polymorpha*
 **Medicago rugosa* Desr. - SE
 **Medicago sativa* L. ssp. *caerulea* (Less. ex Ledeb.)Schmalh. - MU SL
 **Medicago sativa* L. ssp. *sativa* - FR MU SL
 **Medicago scutellata* (L.)Miller - YP SL
Medicago tentaculata sensu J.Black (1948) = *Medicago truncatula*
Medicago tribuloides Desr. var. *truncatula* (Gaertner)Koch = *Medicago truncatula*
 **Medicago truncatula* Gaertner - NU FR EP MU YP SL KI SE
Medicago truncatula Gaertner var. *longispina* Urban = *Medicago truncatula*
 **Melilotus alba* Medikus - NL MU SL SE
Melilotus arvensis Wallr. = *Melilotus officinalis*
 **Melilotus indica* (L.)All. - FR EP NL MU YP SL KI SE
 **Melilotus messanensis* All. - SL
 **Melilotus officinalis* (L.)Pallas - SL
Melilotus parviflora Desf. = *Melilotus indica*
Mimosa decurrens Donn = *Acacia decurrens*
Mimosa distachya Vent. = *Albizia lophantha*
Mimosa dodonaeifolia Pers. = *Acacia dodonaeifolia*
Mimosa farnesiana L. = *Acacia farnesiana*
Mimosa juliflora Sw. = *Prosopis juliflora*
Mimosa longifolia Andrews = *Acacia longifolia* var. *longifolia*
Mimosa myrtifolia Sims = *Acacia myrtifolia*
Mimosa saligna Labill. = *Acacia saligna*

91.182 LEGUMINOSAE (contd)

- Mimosa sophorae* Labill. = *Acacia longifolia* var. *sophorae*
Mimosa stricta Andrews = *Acacia stricta*
Mimosa suaveolens Sims = *Acacia suaveolens*
Mimosa verticillata L'Hér. = *Acacia verticillata*
Muelleranthus stipularis (J.Black) A.Lee - NW
Muelleranthus trifoliolatus (F.Muell.) J.B.Hutch. ex A.Lee - not in S.Aust.
Neptunia dimorphantha Domin - LE
Neptunia gracilis Benth. forma *gracilis* - not in S.Aust.
Neptunia gracilis Benth. var. *villosula* Benth. = *Neptunia gracilis* forma *gracilis*
Neptunia monosperma sensu J.Black (1948) = *Neptunia dimorphantha*
**Ornithopus compressus* L. - NL MU YP
**Oxylobium lanceolatum* (Vent.) Druce - SL
**Parkinsonia aculeata* L. - GT EP MU
Petalogyne cassioides F.Muell. = *Petalostylis cassioides*
Petalostylis spinescens E.Pritzel = *Petalostylis cassioides*
Petalostylis cassioides (F.Muell.) Symon - NW
Petalostylis labicheoides R.Br. - LE GT FR
Petalostylis labicheoides R.Br. var. *cassioides* Benth. = *Petalostylis cassioides*
Petalostylis labicheoides R.Br. var. *microphylla* Ewart & Morrison = *Petalostylis cassioides*
Phyllota pleurandroides F.Muell. - MU SL KI SE
Phyllota remota J.H.Willis - EP MU SL KI SE
Platylobium obtusangulum Hook. - MU SL KI SE
Platylobium obtusangulum Hook. var. *spinulosum* J.H.Willis = *Platylobium obtusangulum*
Platylobium ovatum Andrews = *Bossiaea prostrata*
Platylobium triangulare R.Br. - not in S.Aust.
**Podalyria sericea* R.Br. - ?EP
**Poinciana gilliesii* Hook. - ?FR ?NL
**Prosopis juliflora* (Sw.) DC. - LE GT EA EP
Psoralea acanthocarpa (Lindley) F.Muell. = *Glycyrrhiza acanthocarpa*
Psoralea adscendens F.Muell. - SE
Psoralea australasica Schldl. - NW LE GT FR EA EP MU YP SL
Psoralea cinerea Lindley - NW LE NU GT EA MU SL
Psoralea criantha J.Black (1948), partly = *Psoralea pallida*
Psoralea criantha sensu J.Black (1948), partly = *Psoralea patens*
Psoralea graveolens Domin - LE GT FR
Psoralea pallida N.Burb. - NW LE NU GT FR MU
Psoralea parva F.Muell. - GT FR EA NL SL
Psoralea patens Lindley - LE NU GT FR EP NL
Psoralea patens sensu J.Black (1948), partly = *Psoralea australasica*
**Psoralea pinnata* L. - SE
Ptychosema anomalum F.Muell. - ?LE
Ptychosema stipulare J.Black = *Muelleranthus stipularis*
Ptychosema trifoliolatum F.Muell. = *Muelleranthus trifoliolatus*
Pultenaea acerosa R.Br. ex Benth. - EP YP SL KI SE
Pultenaea acerosa R.Br. ex Benth. var. *acicularis* H.B.Williamson = *Pultenaea acerosa*
Pultenaea canaliculata F.Muell. var. *canaliculata* - EP YP SL KI SE
Pultenaea canaliculata F.Muell. var. *latifolia* H.B.Williamson - EP SL KI SE
Pultenaea cymbifolia J.Black = *Pultenaea elachista*
Pultenaea daphnoides Wendl. - EP MU SL KI
Pultenaea daphnoides Wendl. var. *obcordata* (Andrews) Benth. = *Pultenaea daphnoides*
Pultenaea densifolia F.Muell. - EP MU YP SL KI SE
Pultenaea dentata Labill. - SL SE
Pultenaea elachista (F.Muell.) Crisp - EP KI
Pultenaea graveolens Tate = *Pultenaea hispidula*
Pultenaea graveolens Tate var. *glabrescens* J.Black = *Pultenaea hispidula*
Pultenaea hispidula R.Br. ex Benth. - FR SL SE
Pultenaea involucreta Benth. - SL
Pultenaea largiflorens F.Muell. ex Benth. - FR EP SL SE
Pultenaea largiflorens F.Muell. ex Benth. var. *latifolia* H.B.Williamson =
Pultenaea largiflorens
Pultenaea laxiflora Benth. - SL KI SE
Pultenaea laxiflora Benth. var. *pilosa* H.B.Williamson = *Pultenaea laxiflora*
Pultenaea mollis Lindley var. *canescens* Benth. = *Pultenaea teretifolia* var. *teretifolia*
Pultenaea obcordata Andrews = *Pultenaea daphnoides*

91.182 LEGUMINOSAE (contd)

- Pultenaea pedunculata* Hook. - EP SL SE
Pultenaea pedunculata Hook. var. *latifolia* H.B. Williamson = *Pultenaea pedunculata*
Pultenaea prostrata Benth. ex Hook.f. - MU ?SL SE
Pultenaea pubescens H.B. Williamson ex J. Black = *Pultenaea hispidula*
Pultenaea quadricolor J. Black = *Pultenaea laxiflora*
Pultenaea rigida R.Br. ex Benth. var. *ovata* J. Weber - EP YP
Pultenaea rigida R.Br. ex Benth. var. *rigida* - EP NL YP KI
Pultenaea scabra R.Br. - SL KI SE
Pultenaea stricta Sims - NL SL SE
Pultenaea tenuifolia R.Br. ex Sims - EP MU YP SL KI SE
Pultenaea tenuifolia R.Br. ex Sims var. *glabra* Benth. = *Pultenaea tenuifolia*
Pultenaea teretifolia H.B. Williamson var. *brachyphylla* H.B. Williamson - KI
Pultenaea teretifolia H.B. Williamson var. *teretifolia* - EP
Pultenaea trichophylla H.B. Williamson ex J. Black - EP SL
Pultenaea trifida J. Black - KI
Pultenaea trinervis J. Black - EP SL KI
Pultenaea vestita R.Br. - EP YP KI SE
Pultenaea villifera Sieber ex DC. var. *australis* Benth. = *Pultenaea trinervis*
Pultenaea villifera Sieber ex DC. var. *glabrescens* J. Black - KI
Pultenaea viscidula Tate - SL KI
Rafnia retusa Vent. = *Templetonia retusa*
Retama duirae (Spach) Webb = *Retama raetam*
Retama monosperma (L.) Boiss. - not in S. Aust.
**Retama raetam* (Forsskal) Webb - MU YP SL
Rhynchosia minima (L.) DC. - NW LE FR EA
Robinia pseudoacacia L. = *Robinia pseudoacacia*
**Robinia pseudoacacia* L. - FR NL MU SL
Sarothamnus scoparius (L.) Wimmer ex Koch = *Cytisus scoparius*
Sclerothamnus microphyllus R.Br. = *Eutaxia microphylla* var. *microphylla*
Sesbania aculeata (Schreber) Poiret - not in S. Aust.
Sesbania aculeata sensu J. Black (1948) = *Sesbania cannabina* var. *cannabina*
Sesbania aegyptica Pers. = *Sesbania sesban*
Sesbania cannabina (Retz.) Poiret var. *cannabina* - LE
**Sesbania sesban* (L.) Merr. - ?SL
Sophora juncea Schrader & Wendl. = *Viminaria juncea*
**Spartium junceum* L. - EP SL
Spartium monospermum L. - not in S. Aust.
Spartium scoparium L. = *Cytisus scoparius*
Sphaerolobium vimineum Smith - EP SL SE
**Sutherlandia frutescens* (L.) R.Br. - FR EP MU SL KI
Swainsona adenophylla J. Black = *Swainsona microcalyx* ssp. *adenophylla*
Swainsona behriana F. Muell. ex J. Black = *Swainsona oroboides*
Swainsona burkei F. Muell. ex Benth. ssp. *acuticarinata* A. Lee - NW NU EP
Swainsona burkittii F. Muell. ex Benth. - FR
Swainsona campestris J. Black - NU
Swainsona campylantha F. Muell. - LE FR
Swainsona canescens (Benth. ex Lindley) F. Muell. var. *canescens* - NW LE NU GT EP
Swainsona canescens (Benth. ex Lindley) F. Muell. var. *horniana* J. Black - NW
Swainsona colutoides F. Muell. - NU GT MU
Swainsona concinna Bailey = *Swainsona oligophylla*
Swainsona dictyocarpa J. Black - GT
Swainsona flssimontana J. Black - FR EA
Swainsona flavicarinata J. Black - LE NU FR EA EP
Swainsona galegifolia (Andrews) R.Br. - not in S. Aust.
Swainsona greyana Lindley ssp. *greyana* - MU SL
Swainsona laxa R.Br. var. *laxa* - EP MU YP
Swainsona laxa R.Br. var. *rigida* Benth. = *Swainsona rigida*
Swainsona leeana J. Weber - FR
Swainsona lessertiifolia DC. - GT EP MU YP SL KI SE
Swainsona lessertiifolia DC. var. *tephrotricha* (F. Muell.) Benth., partly =
Swainsona tephrotricha
Swainsona microcalyx (J. Black) J. Black var. *adenophylla* (J. Black) J. Black =
Swainsona microcalyx ssp. *adenophylla*
Swainsona microcalyx J. Black ssp. *adenophylla* (J. Black) A. Lee - LE GT FR

91.182 LEGUMINOSAE (contd)

- Swainsona microcalyx* J.Black ssp. *microcalyx* - NU GT EP
Swainsona microphylla A.Gray ssp. *affinis* A.Lee - NW LE GT
Swainsona microphylla A.Gray ssp. *glabrescens* A.Lee - NW GT
Swainsona microphylla A.Gray ssp. *microphylla* - not in S.Aust.
Swainsona microphylla A.Gray ssp. *minima* A.Lee - NW MU
Swainsona microphylla A.Gray ssp. *pallescens* A.Lee - LE
Swainsona microphylla A.Gray ssp. *tomentosa* A.Lee - LE
Swainsona microphylla A.Gray var. *affinis* J.Black = *Swainsona microphylla* ssp. *affinis*
Swainsona microphylla A.Gray var. *minima* J.Black = *Swainsona microphylla* ssp. *minima*
Swainsona microphylla A.Gray var. *tomentosa* J.Black =
Swainsona microphylla ssp. *tomentosa*
Swainsona minutiflora A.Lee - FR LE
Swainsona morrisiana J.Black = *Swainsona murrayana* ssp. *murrayana*
Swainsona murrayana Wawra ssp. *eciliata* A.Lee - LE EA
Swainsona murrayana Wawra ssp. *murrayana* - EA
Swainsona oligophylla F.Muell. ex Benth. - ?NW LE GT ?EP
Swainsona oliveri F.Muell. - NW LE NU GT FR EP
Swainsona oncinotropis F.Muell. = *Swainsona swainsonioides*
Swainsona oroboides F.Muell. ex Benth. - NW LE NU GT EP NL MU SL SE
Swainsona oroboides F.Muell. ex Benth. ssp. *hirsuta* (J.Black)A.Lee = *Swainsona oroboides*
Swainsona oroboides F.Muell. ex Benth. ssp. *reticulata* (J.Black)A.Lee =
Swainsona oroboides
Swainsona oroboides F.Muell. ex Benth. ssp. *sericea* A.Lee = *Swainsona oroboides*
Swainsona phacoides Benth. ssp. *phacoides* - NW LE NU GT FR EA EP
Swainsona phacoides Benth. var. *argyrophylla* J.Black =
Swainsona phacoides ssp. *phacoides*
Swainsona phacoides Benth. var. *oocarpa* J.Black = *Swainsona phacoides* ssp. *phacoides*
Swainsona phacoides Benth. var. *parviflora* Benth. = *Swainsona phacoides* ssp. *phacoides*
Swainsona procumbens (F.Muell.)F.Muell. - LE FR EA NL SE
Swainsona procumbens (F.Muell.)F.Muell. var. *minor* Benth. = *Swainsona swainsonioides*
Swainsona procumbens (F.Muell.)F.Muell. var. *parviflora* J.Black = *Swainsona procumbens*
Swainsona reticulata J.Black = *Swainsona oroboides*
Swainsona rigida (Benth.)J.Black - LE EA
Swainsona stipularis F.Muell. var. *oocarpa* J.Black = *Swainsona stipularis*
Swainsona stipularis F.Muell. var. *longialata* A.Lee = *Swainsona stipularis*
Swainsona stipularis F.Muell. var. *purpurea* A.Lee = *Swainsona stipularis*
Swainsona swainsonioides (Benth.)A.Lee ex J.Black - LE EA
Swainsona tenuis E.Pritzel = *Swainsona oroboides*
Swainsona tephrotricha F.Muell. - LE FR EA NL MU
Swainsona uniflora J.Black = *Swainsona phacoides* ssp. *phacoides*
Swainsona unifoliolata F.Muell. - NW
Swainsona villosa J.Black - NW LE GT
Swainsona viridis J.Black - FR EA
Teline linifolia (L.)Webb & Berth. = *Genista linifolia*
Teline maderensis Webb & Berth. = *Cytisus maderensis*
Teline monspessulana (L.)C.Koch = *Genista monspessulana*
Templetonia aculeata (F.Muell.)Benth. - FR EA NL
Templetonia battii F.Muell. - EP
Templetonia egena (F.Muell.)Benth. - NW LE NU GT FR EA EP NL MU
Templetonia muelleri Benth. = *Templetonia stenophylla*
Templetonia retusa (Vent.)R.Br. - FR EP YP SL KI
Templetonia stenophylla (F.Muell.)J.Black - SE
Templetonia sulcata (Meissner)Benth. - EP NL MU YP
Tephrosia brachyodon Domin - ?NW
Tephrosia purpurea sensu J.Black (1948) = *Tephrosia brachyodon*
Tephrosia sphaerospora F.Muell. - NW LE GT FR EA
Tephrosia supina Domin - NW
Trifolium Melilotus indica L. = *Melilotus indica*
Trifolium Melilotus officinalis L. = *Melilotus officinalis*
**Trifolium angustifolium* L. - FR EP NL MU YP SL KI SE
**Trifolium arvense* L. var. *arvense* - FR MU EP YP SL SE
Trifolium arvense L. var. *glabrum* Vis. = *Trifolium arvense* var. *arvense*
**Trifolium campestre* Schreber - FR EP NL MU YP SL KI SE

91.182 LEGUMINOSAE (contd)

- **Trifolium cernuum* Brot. - MU SL KI SE
- **Trifolium cherleri* L. - SL
- Trifolium clusii* Godr. & Gren. = *Trifolium resupinatum* var. *resupinatum*
- **Trifolium dubium* Sibth. - EP SL KI SE
- Trifolium filiforme* L. = *Trifolium micranthum*
- **Trifolium fragiferum* L. var. *fragiferum* - MU SL SE
- **Trifolium fragiferum* L. var. *pulchellum* Lange - ?SL
- **Trifolium glomeratum* L. - LE FR EP NL MU YP SL KI SE
- Trifolium israeliticum* D.Zoh. & Katzn. - not in S.Aust.
- Trifolium laevigatum* Poir. = *Trifolium strictum*
- **Trifolium lappaceum* L. - SL SE
- **Trifolium micranthum* Viv. - SL
- Trifolium minus* Smith = *Trifolium dubium*
- **Trifolium ornithopodioides* L. - MU SL SE
- **Trifolium pratense* L. var. *pratense* - SL SE
- Trifolium procumbens* sensu J.Black (1948) = *Trifolium campestre*
- **Trifolium repens* L. - MU SL SE
- **Trifolium resupinatum* L. var. *majus* Boiss. - ?SL
- Trifolium resupinatum* L. var. *minus* Boiss. = *Trifolium resupinatum* var. *resupinatum*
- **Trifolium resupinatum* L. var. *resupinatum* - EP SL SE
- **Trifolium rubens* L. - SL
- **Trifolium scabrum* L. - YP SL SE
- **Trifolium stellatum* L. - SE
- **Trifolium striatum* L. - SL SE
- Trifolium strictum* L. - not in S.Aust.
- **Trifolium subterraneum* L. - EP YP SL KI SE
- **Trifolium suffocatum* L. - EP YP SL SE
- **Trifolium tomentosum* L. - GT FR EP NL MU SL KI SE
- **Trigonella monspeliaca* L. - NL SL
- Trigonella ornithopodioides* (L.)DC. = *Trifolium ornithopodioides*
- Trigonella suavissima* Lindley - NW LE GT FR EA MU
- **Ulex europaeus* L. - MU NL SL SE
- Verdcourtia lignosa* (L.)R.Wilczek = *Dipogon lignosus*
- Vicia angustifolia* L. = *Vicia sativa* ssp. *nigra*
- Vicia angustifolia* L. ssp. *cordata* (Wulfen ex Hoppe)Arcang. = *Vicia sativa* ssp. *cordata*
- Vicia angustifolia* L. var. *cordata* (Wulfen ex Hoppe)Boiss. = *Vicia sativa* ssp. *cordata*
- Vicia calcarata* sensu J.Black (1948) = *Vicia monantha*
- Vicia cordata* Wulfen ex Hoppe = *Vicia sativa* ssp. *cordata*
- **Vicia cracca* L. - GT MU SL KI SE
- Vicia galegifolia* Andrews = *Swainsona galegifolia*
- **Vicia hirsuta* (L.)Gray - SL SE
- **Vicia monantha* Retz. - NW LE GT FR EA EP NL MU YP SL
- **Vicia sativa* L. ssp. *cordata* (Wulfen ex Hoppe)Asch. & Graebner - SL
- **Vicia sativa* L. ssp. *nigra* (L.)Ehrh. - EA SL KI
- **Vicia sativa* L. ssp. *sativa* - EP NL YP SL KI SE
- Vicia sativa* L. var. *angustifolia* L. = *Vicia sativa* ssp. *nigra*
- Vicia sativa* L. var. *nigra* L. = *Vicia sativa* ssp. *nigra*
- **Vicia tetrasperma* (L.)Schreber - SL SE
- Vigna lanceolata* Benth. - LE
- Vigna lanceolata* Benth. var. *latifolia* C.White = *Vigna lanceolata*
- Viminaria denudata* (Vent.)Sims = *Viminaria juncea*
- Viminaria juncea* (Schrader & Wendl.)Hoffsgg. - SL KI SE
- Zichya latrobeana* Meissner = *Glycine latrobeana*

91.188 OXALIDACEAE

- **Oxalis articulata* Savigny - SL SE
- **Oxalis bifurca* Lodd. - SL
- **Oxalis bowiei* Herbert ex Lindley - FR EP NL MU YP SL
- **Oxalis brasiliensis* Lodd. - SL SE
- Oxalis cernua* Thunb. = *Oxalis pes-caprae*
- **Oxalis compressa* L.f. - EP NL YP SL
- **Oxalis corniculata* L. ssp. *corniculata* - SL
- Oxalis corymbosa* DC. = *Oxalis debilis* var. *corymbosa*
- **Oxalis debilis* Kunth var. *corymbosa* (DC.)Lour. - ?SL

91.188 OXALIDACEAE (contd)

- Oxalis exilis* Cunn. = *Oxalis perennans*
 **Oxalis flava* L. - EP MU SL SE
 **Oxalis hirta* L. - EP MU NL SL SE
 **Oxalis incarnata* L. - EP MU SL SE
 **Oxalis latifolia* Kunth - SL SE
Oxalis perennans Haw. - NW LE NU FR EA EP NL MU YP SL KI SE
 **Oxalis pes-caprae* L. - FR EP MU YP SL KI SE
 **Oxalis polyphylla* Jacq. var. *pentaphylla* (Sims) Salter - SL
 **Oxalis purpurea* L. - EP NL MU YP SL KI
Oxalis radicata A.Rich. - NW EP MU
 **Oxalis* sp. 'Lyndoch' - SL
 **Oxalis* sp. 'Mylor' - SL
Oxalis variabilis Jacq. = *Oxalis purpurea*

91.191 GERANIACEAE

- Erodium angustilobum* Carolin - NW LE GT
 **Erodium aureum* Carolin - NW LE NU GT FR EA EP MU
 **Erodium botrys* (Cav.) Bertol. - FR EP NL MU YP SL KI SE
Erodium botrys (Cav.) Bertol. var. *brachycarpum* Godron = *Erodium brachycarpum*
Erodium botrys (Cav.) Bertol. var. *obtusiplicatum* Maire, Weiller & Wilczek =
Erodium brachycarpum
 **Erodium brachycarpum* (Godron) Thell. - MU SL
 **Erodium cicutarium* (L.) L'Hér. ex Aiton - LE NU GT FR EA EP NL MU YP SL KI SE
Erodium cicutarium (L.) L'Hér. ex Aiton var. *stellatum* (Del.) Graebner =
Erodium cicutarium
Erodium crinitum Carolin - NW LE NU GT FR EA EP NL MU YP SL SE
Erodium cygnorum Nees ssp. *cygnorum* - NW LE NU GT EP
Erodium cygnorum Nees ssp. *glandulosum* Carolin - NW LE NU GT FR EA EP
Erodium cygnorum sensu J.Black (1948), partly = *Erodium crinitum*
 **Erodium malacoides* (L.) Willd. - YP
 **Erodium moschatum* (L.) L'Hér. ex Aiton - EP NL MU YP SL KI SE
Erodium obtusiplicatum (Maire, Weiller & Wilczek) J.Howell = *Erodium brachycarpum*
Erodium pauciflorum Turcz. = *Erodium botrys*
Erodium sp. 'Blesing' - EP
Erodium stellatum Del. = *Erodium cicutarium*
Geranium botrys Cav. = *Erodium botrys*
Geranium cicutarium L. = *Erodium cicutarium*
 **Geranium dissectum* L. - ?MU SL
Geranium dissectum L. var. *australe* Benth. 'race' *pilosum* Benth. =
Geranium solanderi var. *solanderi*
Geranium dissectum L. var. *australe* Benth. 'race' *potentilloides* Benth. =
Geranium potentilloides var. *potentilloides*
Geranium glomeratum Andrews = *Pelargonium australe*
Geranium malacoides L. = *Erodium malacoides*
Geranium microphyllum Hook.f. = *Geranium potentilloides* var. *potentilloides*
 **Geranium molle* L. var. *molle* - EP YP SL KI SE
Geranium neesianum Carolin = *Geranium retrorsum*
Geranium philonothum DC. = *Geranium potentilloides* var. *potentilloides*
Geranium pilosum Willd. = *Geranium solanderi* var. *solanderi*
Geranium pilosum Willd. var. *potentilloides* (L'Hér. ex DC.) Ewart =
Geranium potentilloides var. *potentilloides*
Geranium potentilloides L'Hér. ex DC. var. *potentilloides* - FR NL YP SL KI SE
 **Geranium purpureum* Villars - SL
Geranium retrorsum L'Hér. ex DC. - FR EP NL MU YP SL KI SE
 **Geranium robertianum* L. - SL
 **Geranium sanguineum* L. - SL
 **Geranium sibiricum* L. - SE
Geranium solanderi Carolin var. *solanderi* - FR EA EP NL MU YP SL KI SE
Geranium sp. (Jessop, 1984) = *Geranium retrorsum*
 **Pelargonium asperum* Ehrh. ex Willd. - EP SL SE
Pelargonium australe Willd. - EP MU YP SL KI SE
Pelargonium australe Willd. var. *erodioides* Benth. = *Pelargonium littorale*
Pelargonium crinitum Nees = *Pelargonium littorale*
Pelargonium cucullatum sensu J.Black (1948) = *Pelargonium × domesticum*

91.191 GERANIACEAE (contd)

- **Pelargonium* × *domesticum* L. Bailey - SL SE
Pelargonium erodioides Hook.f. = *Pelargonium australe*
Pelargonium glomeratum (Andrews) Jacq. = *Pelargonium australe*
Pelargonium graveolens sensu J. Black (1948) = *Pelargonium* × *asperum*
Pelargonium inodorum sensu J. Black (1948) = *Pelargonium littorale*
Pelargonium littorale Huegel - FR EP MU YP SL KI SE
Pelargonium renifolium Swinbourne = *Pelargonium littorale*
Pelargonium rodneyanum T.L. Mitchell ex Lindley - SE
Pelargonium stenanthum Turcz. = *Pelargonium littorale*

91.196 TROPAEOLACEAE

- **Tropaeolum majus* L. - SL

91.197 ZYGOPHYLLACEAE

- Kallostroemia hystrix* (R.Br.) Engler = *Tribulus hystrix*
Nitraria billardierei DC. - ?NW LE NU GT FR EA EP NL MU YP SL KI SE
Nitraria schoberi sensu J. Black (1948) = *Nitraria billardierei*
**Peganum harmala* L. - FR EA NL MU SL SE
Roepera aurantiaca Lindley = *Zygophyllum aurantiacum*
Tribulus astrocarpus F. Muell. - ?NW LE
Tribulus hystrix R.Br. - LE GT ?FR
Tribulus macrocarpus F. Muell. ex Benth. - LE
Tribulus occidentalis R.Br. - NW LE FR NL
**Tribulus terrestris* L. - NW LE NU EA EP NL MU YP SL
Zygophyllum ammophilum F. Muell. - NW LE NU GT EA EP YP MU
Zygophyllum apiculatum L. - LE NU GT FR EA EP NL MU YP
Zygophyllum aurantiacum (Lindley) F. Muell. - NW LE NU GT FR EA EP NL MU YP SL
Zygophyllum aurantiacum (Lindley) F. Muell. var. *eremaeum* (Diels) H. Eichler =
Zygophyllum eremaeum
Zygophyllum billardierei DC. - NU EP NL MU YP SL KI SE
Zygophyllum compressum J. Black - NW LE NU GT FR EA EP MU
Zygophyllum crassissimum Ising - NW LE
Zygophyllum crenatum F. Muell. - LE FR EA EP NL MU YP
Zygophyllum eremaeum (Diels) Ostenf. - NW LE NU GT FR EA EP MU
Zygophyllum fruticosum DC. var. *eremaeum* Diels = *Zygophyllum eremaeum*
Zygophyllum fruticosum sensu J. Black (1948) = *Zygophyllum aurantiacum*
Zygophyllum glaucescens F. Muell. = *Zygophyllum glaucum*
Zygophyllum glaucescens F. Muell. var. *lobulatum* Benth. = *Zygophyllum crenatum*
Zygophyllum glaucum F. Muell. - NW LE NU FR EP NL MU YP SL
Zygophyllum howittii F. Muell. - LE GT FR EA EP
Zygophyllum humillimum M. Koch - LE FR EA
Zygophyllum hybridum Tate - LE FR
Zygophyllum iodocarpum F. Muell. - NW LE GT FR EA EP MU
Zygophyllum kochii Tate - LE FR
Zygophyllum ovatum Ewart & Jean White - NU GT FR EA EP MU YP
Zygophyllum prismatothecum F. Muell. - NW LE GT FR EA
Zygophyllum tesquorum J. Black - ?NW LE

91.199 LINACEAE

- Linum gallicum* L. = *Linum trigynum*
Linum marginale Cunn. ex Planchon - FR EA EP NL MU YP SL SE
**Linum strictum* L. ssp. *strictum* - EP YP SL KI
**Linum trigynum* L. - NL YP SL KI
**Linum usitatissimum* L. - SL

91.204 EUPHORBIACEAE

- Adriana hookeri* (F. Muell.) Muell.-Arg. - NW LE NU EP MU
Adriana klotzschii (F. Muell.) Muell.-Arg. - FR EA EP NL MU YP SL KI SE
Adriana quadripartita (Labill.) Gaudich. - EP
Allenia blackiana Ewart & B. Rees = *Micrantheum demissum*
Allenia blackiana Ewart & B. Rees var. *microphylla* Ewart & B. Rees =
Micrantheum demissum
Amperea spartioides Brongn. = *Amperea xiphoclada*
Amperea xiphoclada (Sieber ex Sprengel) Druce - SE

91.204 EUPHORBIACEAE (contd)

- Bertya mitchellii* (Sonder) Muell.-Arg. - EP MU YP SE
Bertya rotundifolia F. Muell. - KI
Beyeria latifolia sensu J.Z. Weber (1986) = *Beyeria lechenaultii*
Beyeria lechenaultii (DC.) Baillon - FR EA EP NL MU YP SL KI SE
Beyeria lechenaultii (DC.) Baillon var. *latifolia* Gruen. = *Beyeria lechenaultii*
Beyeria lechenaultii (DC.) Baillon var. *ledifolia* (Klotzsch) Gruen. = *Beyeria lechenaultii*
Beyeria lechenaultii (DC.) Baillon var. *rosmarinoides* Baillon = *Beyeria lechenaultii*
Beyeria ledifolia (Klotzsch) Sonder = *Beyeria lechenaultii*
Beyeria lechenaultii (DC.) Baillon = *Beyeria lechenaultii*
Beyeria opaca F. Muell. - LE NU GT FR EP MU
Beyeria opaca F. Muell. var. *latifolia* J. Black = *Beyeria opaca*
Beyeria opaca F. Muell. var. *linearis* Benth. = *Beyeria lechenaultii*
Beyeria subsecta J. Black - KI
Beyeria viscosa sensu Tate (1890) = *Beyeria lechenaultii*
Beyeriopsis latifolia sensu J. Weber (1986) = *Beyeria lechenaultii*
Calycopeplus ephedroides Planchon = *Calycopeplus paucifolius*
Calycopeplus paucifolius (Klotzsch) Baillon - ?LE
Calyptrostigma ledifolium Klotzsch = *Beyeria lechenaultii*
Chamaesyce australis (Boiss.) Hassall = *Euphorbia australis*
Chamaesyce dallachyana (Boiss.) Hassall = *Euphorbia dallachyana*
Chamaesyce drummondii (Boiss.) Hassall = *Euphorbia drummondii*
Chamaesyce inappendiculata (Domin) Hassall = *Euphorbia inappendiculata*
Chamaesyce maculata (L.) Small = *Euphorbia maculata*
Chamaesyce myrtoides (Boiss.) Hassall = *Euphorbia myrtoides*
Chamaesyce schultzei (Benth.) Hassall = *Euphorbia schultzei*
Chamaesyce wheeleri (Baillon) Hassall = *Euphorbia wheeleri*
Chamaesyce mitchelliana (Boiss.) Hassall = *Euphorbia mitchelliana* var. *mitchelliana*
* *Chrozophora tinctoria* (L.) Andrews - FR EP NL
Croton clutoides Forster f. = *Euphorbia tannensis* ssp. *tannensis*
Croton quadripartitus Labill. = *Adriana quadripartita*
Croton setigerus Hook. = *Eremocarpus setigerus*
Croton tinctorium L. = *Chrozophora tinctoria*
* *Eremocarpus setigerus* (Hook.) Benth. - ?NL ?SL
* *Eremocarpus setigerus* (Hook.) Benth.
Euphorbia australis Boiss. - NW LE GT FR EA
Euphorbia clutoides (Forster f.) C. Gardner = *Euphorbia tannensis* ssp. *tannensis*
Euphorbia coghlanii Bailey - LE
* *Euphorbia cyparissias* L. - SL
Euphorbia dallachyana Boiss. - not in S. Aust.
* *Euphorbia dendroides* L. - ?MU ?YP ?SL
Euphorbia deserticola F. Muell. = *Euphorbia tannensis* ssp. *eremophila*
Euphorbia drummondii Boiss. - NW LE NU GT FR EA EP NL MU YP SL SE
Euphorbia eremocarpos Pharm. ex Wehmer = *Euphorbia tannensis* ssp. *eremophila*
Euphorbia eremophila Cunn. ex Hook. = *Euphorbia tannensis* ssp. *eremophila*
Euphorbia erythrantha F. Muell. = *Euphorbia australis*
* *Euphorbia exigua* L. - SL SE
* *Euphorbia falcata* L. - SL
Euphorbia finlaysonii J. Black =
Euphorbia tannensis ssp. *eremophila* (Cunn.) Hassall var. *finlaysonii*
* *Euphorbia helioscopia* L. - EP NL YP SL
Euphorbia inappendiculata Domin - NW LE
Euphorbia lathyris L. = *Euphorbia lathyris*
* *Euphorbia lathyris* L. - SL
* *Euphorbia maculata* L. - SL
Euphorbia marginata Pursh - status uncertain
Euphorbia mitchelliana Boiss. var. *mitchelliana* - LE
Euphorbia murrayana J. Black = *Euphorbia stevenii*
Euphorbia myrtoides Boiss. - status uncertain
* *Euphorbia paralias* L. - EP YP SL KI SE
Euphorbia parvicaruncula Hassall - NW LE GT FR MU
* *Euphorbia peplus* L. - FR EP NL MU YP SL KI SE
Euphorbia planiticola Hassall - LE
Euphorbia schultzei Benth. - NW
* *Euphorbia segetalis* L. - SL

91.204 EUPHORBIACEAE (contd)

- Euphorbia stevenii* Bailey - LE GT FR EA
Euphorbia tannensis Sprengel ssp. *eremophila* (Cunn. ex Hook.) Hassall
 var. *finlaysonii* (J.Black) Hassall = *Euphorbia tannensis*
Euphorbia tannensis Sprengel ssp. *eremophila* (Cunn.) ex Hook. (Hassall) -
 NW LE NU GT FR EA EP NL MU YP SL
Euphorbia tannensis Sprengel ssp. *eremophila* (Cunn.) Hassall
 var. *finlaysonii* (J.Black) Hassall - LE GT
Euphorbia tannensis Sprengel ssp. *tannensis* - not in S.Aust.
 **Euphorbia terracina* L. - EP NL MU YP SL SE
Euphorbia wheeleri Baillon - NW LE FR EA
Glochidion rhytidospermum (Muell.-Arg.) H.Eichler = *Sauropus trachyspermus*
Glochidion rigens (F.Muell.) H.Eichler = *Sauropus rigens*
Glochidion thesioides sensu H.Eichler (1965) = *Sauropus ramosissimus*
Glochidion trachyspermum (F.Muell.) H.Eichler = *Sauropus trachyspermus*
Hemistemma lechenaultii DC. = *Beyeria lechenaultii*
Leptomeria xiphoclada Sieber ex Sprengel = *Amperea xiphoclada*
Micrantheum demissum F.Muell. - SL KI
Micrantheum demissum F.Muell. var. *microphyllum* (Ewart & B.Rees) Gruen. =
Micrantheum demissum
Micrantheum tatei (F.Muell.) J.Black = *Pseudanthus micranthus*
Monotaxis luteiflora F.Muell. - NW
Phyllanthus australis Hook.f. - ?NW FR YP SL KI
Phyllanthus australis sensu Kalotas (1981) =
Phyllanthus maderaspatensis var. *angustifolius*
Phyllanthus calycinus Labill. - FR EP YP SL
Phyllanthus fuernrohrrii F.Muell. - LE GT FR EP MU
Phyllanthus gunnii Hook.f. var. *saxosus* (F.Muell.) Benth. = *Phyllanthus saxosus*
Phyllanthus hirtellus Muell.-Arg. - not in S.Aust.
Phyllanthus hirtellus Muell.-Arg. var. *parviflorus* (J.Black) H.Eichler = *Phyllanthus hirtellus*
Phyllanthus lacunarius F.Muell. - NW LE GT FR EA EP MU SL
Phyllanthus maderaspatanus L. var. *angustifolius* Benth. =
Phyllanthus maderaspatensis var. *angustifolius*
Phyllanthus maderaspatensis L. var. *angustifolius* Benth. - LE
Phyllanthus ramosissimus (F.Muell.) Muell.-Arg. = *Sauropus ramosissimus*
Phyllanthus rhytidospermus F.Muell. ex Muell.-Arg. = *Sauropus trachyspermus*
Phyllanthus rigens (F.Muell.) Muell.-Arg. = *Sauropus rigens*
Phyllanthus saxosus F.Muell. - FR EA EP NL MU SL SE
Phyllanthus sp. aff. *lacunarius* F.Muell. - ?LE
Phyllanthus tatei F.Muell. = *Pseudanthus micranthus*
Phyllanthus thesioides sensu J.Black (1948) = *Sauropus ramosissimus*
Phyllanthus thymoides (Muell.-Arg.) Muell.-Arg. var. *parviflorus* J.Black =
Phyllanthus hirtellus
Phyllanthus thymoides Sieber ex Sonder = *Phyllanthus hirtellus*
Phyllanthus trachyspermus F.Muell. = *Sauropus trachyspermus*
Poranthera ericoides Klotzsch - EP SL KI
Poranthera microphylla Brongn. - NU GT NL MU YP SL KI SE
Poranthera microphylla Brongn. var. *diffusa* Muell.-Arg. = *Poranthera microphylla*
Poranthera triandra J.Black - EP MU YP SL
Pseudanthus micranthus Benth. - ?NL SL
Ricinocarpus mitchellii Sonder = *Bertya mitchellii*
 **Ricinus communis* L. - LE FR ?EP NL MU ?YP SL ?KI ?SE
Sauropus ramosissimus (F.Muell.) Airy Shaw - NW
Sauropus rigens (F.Muell.) Airy Shaw - LE FR EA
Sauropus thesioides (H.Eichler) Airy Shaw - not in S.Aust.
Sauropus trachyspermus (F.Muell.) Airy Shaw - NW LE GT FR EA ?MU
Synostemon ramosissimus F.Muell. = *Sauropus ramosissimus*
Synostemon rigens F.Muell. = *Sauropus rigens*
Synostemon thesioides sensu Airy Shaw (1981), partly = *Sauropus ramosissimus*
Synostemon thesioides sensu Airy Shaw (1981), partly = *Sauropus trachyspermus*
Synostemon trachyspermus (F.Muell.) Airy Shaw = *Sauropus trachyspermus*
Trachycaryon hookeri F.Muell. = *Adriana hookeri*
Trachycaryon klotzschii F.Muell. = *Adriana klotzschii*

91.212 RUTACEAE

- Asterolasia asteriscophora* (F.Muell.)Druce - ?KI
Asterolasia muricata J.Black - SL KI
Asterolasia pheballoides F.Muell. - KI
Atalantia glauca (Lindley)Benth. = *Eremocitrus glauca*
Boronia caerulea F.Muell. = *Boronia caerulea* ssp. *caerulea*
Boronia clavellifolia F.Muell. = *Boronia inornata* ssp. *leptophylla*
Boronia caerulea F.Muell. ssp. *caerulea* - NU EP NL MU YP SL KI SE
Boronia edwardsii Benth. - MU SL KI
Boronia filifolia F.Muell. - EP MU SL KI SE
Boronia inornata Turcz. ssp. *leptophylla* (Turcz.)Burgman - EP NL MU YP SE
Boronia leptophylla Turcz. = *Boronia inornata* ssp. *leptophylla*
Boronia nana Hook. - SL SE
Boronia nana Hook. var. *hyssopifolia* Melville = *Boronia nana*
Boronia oppositifolia (Pers.)Cheel = *Boronia nana*
Boronia palustris Maiden & J.Black = *Boronia parviflora*
Boronia parviflora Smith - SL KI SE
Boronia pilosa Labill. - SE
Boronia polygalifolia Smith var. *oppositifolia* (Pers.)J.Black = *Boronia nana*
Boronia tetratheoides DC. = *Boronia nana*
Boronia veronica F.Muell. = *Zieria veronica*
 **Choisya ternata* Kunth - ?SL
 **Coleonema pulchellum* I.J.Williams - ?EP ?SL
Correa aemula (Lindley)F.Muell. - MU SL KI
Correa alba Andrews var. *pannosa* Paul G.Wilson - SL SE
Correa alba Andrews var. *rotundifolia* (Lindley)Benth. = *Correa alba* var. *pannosa*
Correa alba sensu J.Black (1948) = *Correa reflexa* var. *coriacea*
Correa calycina J.Black - SL KI
Correa decumbens F.Muell. - SL KI
Correa glabra Lindley - FR EA NL MU SL ?KI SE
Correa minor (Ashby)J.Black = *Correa pulchella*
Correa neglecta Ashby = *Correa pulchella*
Correa neglecta Ashby var. *minor* Ashby = *Correa pulchella*
Correa nummulariifolia Hook. f. = *Correa reflexa* var. *nummulariifolia*
Correa pulchella Mackay ex Sweet - EP YP SL KI SE
Correa reflexa (Labill.)Vent. - NU GT EP NL MU YP SL KI SE
Correa reflexa (Labill.)Vent. var. *coriacea* Paul G.Wilson - status uncertain
Correa reflexa (Labill.)Vent. var. *nummulariifolia* (Hook.f.)Paul G.Wilson - status uncertain
Correa reflexa sensu J.Black (1948) = *Correa* sp. aff. *calycina*
Correa rotundifolia Lindley = *Correa alba* var. *pannosa*
Correa rubra Smith = *Correa reflexa* var. *reflexa*
Correa rubra Smith var. *megacalyx* J.Black = *Correa glabra*
Correa rubra Smith var. *orbicularis* J.Black = *Correa reflexa* var. *nummulariifolia*
Correa rubra Smith var. *pulchella* (Sweet)J.Black = *Correa pulchella*
Correa rubra Smith var. *turnbullii* (Ashby)J.Black = *Correa schlechtendalii*
Correa schlechtendalii sensu R.J.Anderson (1986) = *Correa glabra*
Correa sp. aff. *calycina* J.Black - SL
Correa speciosa Andrews = *Correa reflexa* var. *reflexa*
Correa turnbullii Ashby = *Correa schlechtendalii*
Didymeria aemula Lindley = *Correa aemula*
Eremocitrus glauca (Lindley)Swingle - ?GT FR EP
Eriostemon angustifolius Paul G.Wilson ssp. *angustifolius* - FR EP NL MU YP SL KI SE
Eriostemon brevifolius sensu J.Black (1948) = *Eriostemon angustifolius*
Eriostemon capitatus F.Muell. = *Microcybe pauciflora*
Eriostemon capitatus F.Muell. var. *baccharoides* F.Muell. =
 Microcybe multiflora var. *baccharioides*
Eriostemon difformis Cunn. ex Endl. ssp. *difformis* - FR
Eriostemon difformis Cunn. ex Endl. var. *teretifolius* Benth. = *Eriostemon angustifolius*
Eriostemon hillebrandii F.Muell., partly = *Phebalium hillebrandii*
Eriostemon linearifolius DC. = *Geijera linearifolia*
Eriostemon linearis Cunn. ex Endl. - NW NU GT FR EA EP
Eriostemon obovalis sensu J.Black (1948) = *Eriostemon verrucosus*
Eriostemon pungens Lindley - FR EP MU YP SL KI SE
Eriostemon sediflorus F.Muell. = *Phebalium glandulosum* ssp. *glandulosum*

91.212 RUTACEAE (contd)

- Eriostemon verrucosus* A.Rich. - NL
Geijera linearifolia (DC.)J.Black - NU FR EP NL MU YP KI
Geijera parviflora Lindley - FR EA MU
Geijera parviflora Lindley var. *crassifolia* Benth. = *Geijera linearifolia*
Microcybe multiflora Turcz. var. *baccharioides* (F.Muell.)Ewart & Tovey -
 NU GT EP NL MU YP
Microcybe multiflora Turcz. var. *multiflora* - GT EP NL MU YP
Microcybe pauciflora Turcz. - EP MU YP SL KI
Phebalium asteriscophorum F.Muell. = *Asterolasia asteriscophora*
Phebalium bilobum Lindley - not in S.Aust.
Phebalium brachyphyllum Benth. - MU YP SL KI SE
Phebalium bullatum J.Black - EP MU YP SL SE
Phebalium equestre D.A.Cooke - KI
Phebalium glandulosum Hook. ssp. *glandulosum* - EP NL YP
Phebalium hillebrandii J.H.Willis - SL KI SE
Phebalium lowanense J.H.Willis - SE
Phebalium pungens (Lindley)Benth. = *Eriostemon pungens*
Phebalium squamulosum Vent. - SE
Phebalium squamulosum Vent. var. *stenophyllum* Benth. = *Phebalium stenophyllum*
Phebalium stenophyllum (Benth.)Maiden & Betche - SE
Pleurandropsis phebaloides (F.Muell.)Baill. = *Asterolasia phebaloides*
 **Ruta graveolens* L. - ?SE
Tetratheca oppositifolia Pers. = *Boronia nana*
Triphasia glauca Lindley = *Eremocitrus glauca*
Urocarpus muricatus (J.Black)Paul G.Wilson = *Asterolasia muricata*
Zanthoxylum australasicum Adr.Juss. = *Geijera linearifolia*
Zieria veronicea (F.Muell.)Benth. - MU SL KI SE

91.216 SIMAROUBACEAE

- **Ailanthus altissima* (Miller)Swingle - MU SL SE
Toxicodendron altissimum Miller = *Ailanthus altissima*

91.220 MELIACEAE

- Melia australasica* Adr.Juss. = *Melia azedarach* var. *australasica*
 **Melia azedarach* L. var. *australasica* (Adr.Juss.)C.DC. - MU ?SL
Melia composita sensu Benth. (1863) = *Melia azedarach* var. *australasica*
Owenia acidula F.Muell. - LE

91.226 TREMANDRACEAE

- Platytheca galioides* Steetz - ?SE
Platytheca verticillata (Paxton)Baillon = *Platytheca galioides*
Tetratheca ciliata Lindley - SE
Tetratheca ericifolia Smith var. *aphylla* Tate = *Tetratheca halmaturina*
Tetratheca ericifolia sensu J.Black (1948) = *Tetratheca insularis*
Tetratheca halmaturina J.Black - KI
Tetratheca insularis J.Thompson - KI
Tetratheca pilosa Labill. ssp. *pilosa* - MU YP SL SE
Tetratheca verticillata Paxton = *Platytheca galioides*

91.227 POLYGALACEAE

- Bredemeyera calymega* (Labill.)Chodat ex Ewart = *Comesperma calymega*
Bredemeyera ciliata (Steetz)Steenis sensu J.Black (1948) = *Comesperma volubile*
Bredemeyera polygaloides (F.Muell.)Chodat ex Ewart = *Comesperma polygaloides*
Bredemeyera scoparia (J.L.Drumm.)Chodat ex Ewart = *Comesperma scoparium*
Bredemeyera volubilis (Labill.)Chodat ex Ewart = *Comesperma volubile*
Comesperma calymega Labill. - EP MU SL KI SE
Comesperma ciliatum Steetz sensu J.Black (1948) = *Comesperma volubile*
Comesperma polygaloides F.Muell. - MU SL SE
Comesperma scoparium J.L.Drumm. - FR EP MU YP SE
Comesperma viscidulum F.Muell. - GT EP
Comesperma volubile Labill. - NU EP NL MU YP SL KI SE
 **Muraltia heisteria* (L.)DC. - SL
Polygala chinensis L. var. *squarrosa* sensu J.Black (1948) = *Polygala isingii*
Polygala isingii Pedley - NW LE

91.227 POLYGALACEAE (contd)

- **Polygala monspeliaca* L. - SE
- **Polygala myrtifolia* L. - EP ?YP SL SE
- **Polygala virgata* Thunb. - SE

91.230 ANACARDIACEAE

- **Schinus areira* L. - FR EA EP NL MU YP SL SE
- Schinus molle* L. var. *areira* (L.)DC. = *Schinus areira*

91.234 ACERACEAE

- **Acer negundo* L. - ?NL SL
- **Acer pseudoplatanus* L. - SL

91.236 SAPINDACEAE

- Alectryon oleifolium* (Desf.)S.Reyn. ssp. *canescens* S.Reyn. - NW LE NU GT FR EA EP NL MU YP

- Atalaya hemiglauc*a (F.Muell.)F.Muell. ex Benth. - LE EA
- Dodonaea angustissima* DC. = *Dodonaea viscosa* ssp. *angustissima*
- Dodonaea attenuata* Cunn. = *Dodonaea viscosa* ssp. *angustissima*
- Dodonaea attenuata* Cunn. var. *linearis* Benth. = *Dodonaea viscosa* ssp. *angustissima*
- Dodonaea baueri* Endl. - FR EA EP NL MU YP SL KI
- Dodonaea bursariifolia* F.Muell. - EP NL MU YP SL SE
- Dodonaea cuneata* Rudge = *Dodonaea viscosa* ssp. *cuneata*
- Dodonaea cuneata* Smith = *Dodonaea viscosa* ssp. *cuneata*
- Dodonaea deflexa* F.Muell. = *Dodonaea baueri*
- Dodonaea hexandra* F.Muell. - EP NL MU YP SL KI SE
- Dodonaea humilis* Endl. - EP MU YP SL KI SE
- Dodonaea intricata* J.G.West - GT EP
- Dodonaea lobulata* F.Muell. - ?NW NU GT FR EA EP NL MU
- Dodonaea microzyga* F.Muell. var. *microzyga* - NW LE NU GT FR EA EP
- Dodonaea petiolaris* sensu J.Black (1952) = *Dodonaea viscosa* ssp. *spatulata*
- Dodonaea procumbens* F.Muell. - NL
- Dodonaea* sp. A = *Dodonaea intricata*
- Dodonaea* sp. B = *Dodonaea subglandulifera*
- Dodonaea spatulata* Smith = *Dodonaea viscosa* ssp. *spatulata*
- Dodonaea stenozyga* F.Muell. - NU GT EP NL MU YP
- Dodonaea tenuifolia* sensu J.Black (1952) = *Dodonaea subglandulifera*
- Dodonaea tepperi* F.Muell. ex Tepper - FR EP MU YP SL
- Dodonaea viscosa* Jacq. ssp. *angustissima* (DC.)J.G.West - NW LE NU GT FR EA EP NL MU YP SL KI
- Dodonaea viscosa* Jacq. ssp. *cuneata* (Smith)J.G.West - MU SL SE
- Dodonaea viscosa* Jacq. ssp. *mucronata* J.G.West - NW
- Dodonaea viscosa* Jacq. ssp. *spatulata* (Smith)J.G.West - LE FR EA EP NL MU YP SL KI SE
- Dodonaea viscosa* Jacq. var. *spatulata* (Smith)Benth. = *Dodonaea viscosa* ssp. *spatulata*
- Dodonaea viscosa* Jacq. var. *spatulata* sensu Benth. (1863) = *Dodonaea viscosa* ssp. *mucronata*
- Heterodendrum macrocalyx* Radlk. = *Alectryon oleifolium* ssp. *canescens*
- Heterodendrum oleifolium* Desf. var. *macrocalyx* (Radlk.)Domin = *Alectryon oleifolium* ssp. *canescens*
- Heterodendrum oleifolium* Desf. var. *microcalyx* sensu J.G.West (1986) = *Alectryon oleifolium* ssp. *canescens*
- Thouinia hemiglauc*a F.Muell. = *Atalaya hemiglauc*a

91.238 HIPPOCASTANACEAE

- **Aesculus hippocastanum* - ?SL

91.241 MELIANTHACEAE

- **Melianthus comosus* Vahl - SL
- **Melianthus major* L. - SL SE

91.248 AQUIFOLIACEAE

- **Ilex aquifolium* L. - SL

91.256 STACKHOUSIACEAE

- Macgregoria racemigera* F.Muell. - not in S.Aust.
Stackhousia annua W.R.Barker - EP YP
Stackhousia aspericocca Schuch. ssp. A - ?NL SL KI SE
Stackhousia aspericocca Schuch. ssp. B - EP NL MU YP SL KI SE
Stackhousia aspericocca Schuch. forma *genuina* Pampan. = *Stackhousia aspericocca*
Stackhousia clementii Domin - NW LE GT FR
Stackhousia elata F.Muell. = *Stackhousia muricata*
Stackhousia flava sensu J.Black (1952) = *Stackhousia monogyna*
Stackhousia flava sensu J.Black (1952), partly = *Stackhousia aspericocca*
Stackhousia liniifolia Cunn. = *Stackhousia monogyna*
Stackhousia liniariifolia sensu Tate (1890), partly = *Stackhousia aspericocca*
Stackhousia megaloptera F.Muell. - NW MU
Stackhousia monogyna Labill. - FR EP NL MU YP SL KI SE
Stackhousia monogyna Labill. var. *muelleri* (Schuch.) Pampan. = *Stackhousia aspericocca*
Stackhousia monogyna sensu J.Black (1952), partly = *Stackhousia aspericocca*
Stackhousia monogyna sensu Labill. (1804), partly = *Stackhousia spathulata*
Stackhousia muelleri Schuch. = *Stackhousia aspericocca*
Stackhousia muricata Lindley - NW NU FR ?EA EP
Stackhousia muricata sensu J.Black (1952) = *Stackhousia clementii*
Stackhousia occidentalis Domin = *Stackhousia muricata*
Stackhousia spathulata Sieber ex Sprengel - EP YP KI SE
Stackhousia spathulata sensu J.Black (1952), partly = *Stackhousia aspericocca*
Stackhousia viminea sensu J.Black (1952) = *Stackhousia muricata*
Tripterococcus spathulatus F.Muell. = *Stackhousia spathulata*

91.263 RHAMNACEAE

- Ceanothus africanus* L. = *Noltea africana*
Cryptandra amara Smith var. *amara* - EP NL MU YP SL SE
Cryptandra amara Smith var. *floribunda* Maiden et Betche - EP
Cryptandra amara Smith var. *longiflora* F.Muell. ex Maiden & Betche - FR NL MU
Cryptandra bifida (F.Muell.) F.Muell. = *Spyridium bifidum*
Cryptandra coactifolia F.Muell. = *Spyridium coactilifolium*
Cryptandra eriocephala (Fenzl) Hook.f. = *Spyridium eriocephalum*
Cryptandra halmaturina (F.Muell.) F.Muell. = *Spyridium halmaturinum*
Cryptandra hispidula Reisseck & F.Muell. ex Reisseck - SL KI
Cryptandra hookeri F.Muell. = *Spyridium parvifolium*
Cryptandra leucophracta Schldl. - FR EP NL MU YP SL KI SE
Cryptandra obovata sensu Tate (1890) = *Spyridium thymifolium*
Cryptandra parvifolia (Hook.) Hook.f. = *Spyridium parvifolium*
Cryptandra phlebophylla (F.Muell.) F.Muell. = *Spyridium phlebophyllum*
Cryptandra propinqua Cunn. ex Fenzl - NU FR EP MU
Cryptandra scabrida Tate = *Spyridium halmaturinum* var. *scabridum*
Cryptandra sieberi Fenzl = *Cryptandra amara*
Cryptandra sieberi Fenzl var. *angustifolia* Fenzl = *Cryptandra amara*
Cryptandra sieberi Fenzl var. *latifolia* Fenzl = *Cryptandra amara*
Cryptandra subochreatea (F.Muell.) F.Muell. = *Spyridium subochreateum*
Cryptandra tomentosa Lindley - EP NL MU YP SL KI SE
Cryptandra tridentata Steudel = *Spyridium tridentatum*
Cryptandra vexillifera Hook. = *Spyridium vexilliferum*
Cryptandra vexillifera sensu Benth. (1863), partly = *Spyridium phyllicoides*
Cryptandra waterhousei F.Muell. = *Cryptandra waterhousii*
Cryptandra waterhousii (F.Muell.) F.Muell. - KI
Cryptandra wayae (F.Muell. & Tate) F.Muell. = *Trymalium wayae*
**Noltea africana* (L.) Harvey - SL
Pomaderris apetala sensu J.Black (1952) = *Pomaderris aspera*
Pomaderris aspera Sieber ex DC. - ?NL
Pomaderris flabellare (F.Muell. ex Reisseck) J.Black = *Pomaderris flabellaris*
Pomaderris flabellaris (F.Muell. ex Reisseck) J.Black - EP
Pomaderris forrestiana F.Muell. - NU
Pomaderris halmaturina J.Black - KI ?SE
Pomaderris myrtilloides Fenzl - ?GT ?KI
Pomaderris obcordata Fenzl - EP MU YP SL KI SE
Pomaderris oraria F.Muell. ex Reisseck - FR EA EP NL MU YP SL KI SE
Pomaderris ovaria F.Muell. ex Reisseck = *Pomaderris oraria*

91.263 RHAMNACEAE (contd)

- Pomaderris paniculosa* F.Muell. ex Reisseck = *Pomaderris oraria*
Pomaderris parvifolia Hook. = *Spyridium parvifolium*
Pomaderris racemosa sensu J.Black (1952) = *Pomaderris oraria*
Pomaderris vacciniifolia Reisseck - ?SL
 **Rhamnus alaternus* L. - EP NL MU YP SL SE
Spyridium bifidum (F.Muell.)F.Muell. ex Benth. var. *bifidum* - FR EP NL MU
Spyridium bifidum (F.Muell.)F.Muell. ex Benth. var. *integrifolium* J.Black - EP KI
Spyridium coactilifolium Reisseck - SL SE
Spyridium coactilifolium Reisseck var. *integrifolium* Benth. = *Spyridium thymifolium*
Spyridium eriocephalum Fenzl var. *adpressum* J.Black = *Spyridium leucopogon*
Spyridium eriocephalum Fenzl var. *eriocephalum* - EP NL MU YP SL KI SE
Spyridium eriocephalum Fenzl var. *glabrisepalum* J.Black - KI
Spyridium halmaturinum (F.Muell.)F.Muell. ex Benth. var. *halmaturinum* - KI SE
Spyridium halmaturinum (F.Muell.)F.Muell. ex Benth. var. *integrifolium* J.Black - KI
Spyridium halmaturinum (F.Muell.)F.Muell. ex Benth. var. *scabridum* (Tate)J.Black - KI
Spyridium leucophractum (Schldl.)F.Muell. = *Cryptandra leucophracta*
Spyridium leucopogon (F.Muell. ex Reisseck)F.Muell. - EP
Spyridium nitidum Wakef. - EP KI SE
Spyridium parvifolium (Hook.)Benth. ex F.Muell. - FR EP NL MU SL ?KI SE
Spyridium phlebophyllum (F.Muell.)F.Muell. - FR EA NL
Spyridium phyllicoides Reisseck - EP MU YP SL KI SE
Spyridium sp. - EP
Spyridium spathulatum (F.Muell.)F.Muell. ex Benth. - FR EP MU SL KI SE
Spyridium spathulatum (F.Muell.)F.Muell. ex Benth. var. *microphyllum* Benth. =
Spyridium nitidum
Spyridium subochreatum Reisseck var. *laxiusculum* J.Black - SL SE
Spyridium subochreatum Reisseck var. *subochreatum* - FR EP NL MU YP SL SE
Spyridium thymifolium Reisseck - SL KI SE
Spyridium tridentatum (Steudel)Benth. - EP
Spyridium vexilliferum (Hook.)Reisseck var. *latifolium* Benth. - KI SE
Spyridium vexilliferum (Hook.)Reisseck var. *vexilliferum* - EP NL SL ?KI SE
Spyridium waterhousei F.Muell. = *Cryptandra waterhousii*
Spyridium waterhousii F.Muell. = *Cryptandra waterhousii*
Stenanthemum leucophractum (Schldl.)Reisseck = *Cryptandra leucophracta*
Stenanthemum waterhousei (F.Muell.)Benth. = *Cryptandra waterhousii*
Trymalium flabellare F.Muell. ex Reisseck = *Pomaderris flabellaris*
Trymalium leucopogon F.Muell. ex Reisseck = *Spyridium leucopogon*
Trymalium wayae F.Muell. & Tate - ?EP MU SL KI SE
Trymalium wayi F.Muell. & Tate = *Trymalium wayae*
Ventilago viminalis Hook. - not in S.Aust.

91.269 MALVACEAE

- Abutilon australe* Garcke = *Abutilon oxycarpum* var. *oxycarpum*
Abutilon avicennae Gaertner = *Abutilon theophrasti*
Abutilon cryptopetalum (F.Muell.)F.Muell. ex Benth. - NW LE GT
Abutilon fraseri (Hook.)Hook. ex Walp. - NW LE GT FR EA MU
Abutilon fraseri (Hook.)Hook. ex Walp. var. *halophilum* (F.Muell.)Benth. =
Abutilon halophilum
Abutilon halophilum F.Muell. - ?NW LE GT FR EA EP
Abutilon leucopetalum (F.Muell.)F.Muell. ex Benth. - NW LE NU GT FR EA
Abutilon macrum F.Muell. - NW LE EP
Abutilon malvaefolium (Benth.)J.Black - NW LE FR EA
Abutilon malvifolium (Benth.)J.Black = *Abutilon malvaefolium*
Abutilon mitchellii Benth. = *Abutilon leucopetalum*
Abutilon otocarpum F.Muell. - NW LE NU GT FR EA EP MU
Abutilon oxycarpum (F.Muell.)F.Muell. forma *incanum* Benth. =
Abutilon oxycarpum var. *incanum*
Abutilon oxycarpum (F.Muell.)F.Muell. ex Benth. var. *incanum* (Benth.)J.Black - NW NU EP
Abutilon oxycarpum (F.Muell.)F.Muell. ex Benth. var. *malvaefolium* Benth. =
Abutilon malvaefolium
Abutilon oxycarpum (F.Muell.)F.Muell. ex Benth. var. *oxycarpum* - LE
Abutilon sp. (*Kochia decaptera*) - status unknown

91.269 MALVACEAE (contd)

- **Abutilon theophrasti* Medik. - LE MU SL SE
 **Alcea rosea* L. - NL MU ?YP SL
Althaea australis W.R.Barker - EP
Althaea rosea (L.)Cav. = *Alcea rosea*
Alyogyne hakeaefolia (Giordano)Alefeld = *Alyogyne hakeifolia*
Alyogyne hakeifolia (Giordano)Alefeld - FR EP YP
Alyogyne huegelii (Endl.)Fryx. - NU FR EP NL YP
Alyogyne pinoniana (Gaudich.)Fryx. var. *microandra* Fryx. - EP
Alyogyne pinoniana (Gaudich.)Fryx. var. *pinoniana* - NW NU GT
Cienfuegosia gossypoides (R.Br.)Hochr. = *Gossypium sturtianum* var. *sturtianum*
Cienfuegosia hakeifolia (Giordano)Hochr. = *Alyogyne hakeifolia*
Fugosia hakeaefolia (Giordano)Hook. = *Alyogyne hakeifolia*
Gossypium australiense Tod. = *Gossypium sturtianum* var. *sturtianum*
Gossypium gossypoides (R.Br.)C.Gardner = *Gossypium sturtianum* var. *sturtianum*
Gossypium sturtianum J.H.Willis var. *sturtianum* - NW LE FR EA EP
Gossypium sturtii F.Muell. = *Gossypium sturtianum* var. *sturtianum*
Gynatrix pulchella (Willd.)Alefeld - ?SE
Halothamnus microphyllus (F.Muell.)F.Muell. = *Lawrenzia squamata*
Hibiscus brachysiphonius F.Muell. - LE FR
Hibiscus drummondii sensu J.Black (1952) = *Alyogyne huegelii*
Hibiscus farragei F.Muell. = *Radyera farragei*
Hibiscus hakeaefolius Giordano = *Alyogyne hakeifolia*
Hibiscus huegelii Endl. = *Alyogyne huegelii*
Hibiscus huegelii Endl. var. *leptochlamys* Benth. = *Alyogyne huegelii*
Hibiscus huegelii Endl. var. *wrayae* (Lindley)Benth. = *Alyogyne huegelii*
Hibiscus intraterraneus J.Black = *Hibiscus solanifolius*
Hibiscus krichauffianus F.Muell. - NW LE NU GT FR EA EP MU
Hibiscus krichauffii F.Muell. = *Hibiscus krichauffianus*
Hibiscus multifidus Paxton = *Alyogyne hakeifolia*
Hibiscus patersonii Andrews = *Lagunaria patersonii*
Hibiscus pinoniana Gaudich. = *Alyogyne pinoniana* var. *pinoniana*
Hibiscus solanifolius F.Muell. - NW
Hibiscus sturtii Hook. var. *grandiflorus* Benth. - NW GT FR EA
Hibiscus sturtii Hook. var. *muelleri* Benth. - NW GT
Hibiscus sturtii Hook. var. *sturtii* - ?LE
Hibiscus tridactylites Lindley = *Hibiscus trionum* var. *vesicarius*
Hibiscus trionum L. var. *trionum* - FR EP NL MU SL SE
Hibiscus trionum L. var. *vesicarius* (Cav.)Hochr. - LE FR SL
Hibiscus vesicarius Cav. = *Hibiscus trionum* var. *vesicarius*
Hibiscus wrayae Lindley = *Alyogyne huegelii*
Howittia trilocularis F.Muell. - ?SE
Kochia decaptera F.Muell. = *Abutilon* sp. (*Kochia decaptera*)
Kochia decaptera F.Muell. = MALVACEAE
Kochia triptera Benth. var. *pentaptera* J.Black = *Abutilon* sp. (*Kochia decaptera*)
 **Lagunaria patersonii* (Andrews)Don - EP ?SL
 **Lavatera arborea* L. - EP NL MU YP SL KI SE
 **Lavatera assurgentiflora* Kellogg - ?SE
Lavatera australis Cunn. ex Hook.f. = *Lavatera plebeia*
Lavatera behriana (Schldl.)Schldl. = *Lavatera plebeia*
 **Lavatera cretica* L. - EP SL SE
Lavatera plebeia Sims - NW LE NU GT FR EA EP NL MU YP SL KI SE
Lavatera plebeia Sims var. *cremacea* J.Black = *Lavatera plebeia*
Lavatera plebeia Sims = *Lavatera plebeia*
Lavatera plebeia Sims var. *tomentosa* Hook.f. = *Lavatera plebeia*
Lawrenzia berthae (F.Muell.)Melville - EP MU YP
Lawrenzia glomerata Hook. - NL LE NU GT FR EA EP SL KI SE
Lawrenzia incana (J.Black)Melville = *Lawrenzia squamata*
Lawrenzia spicata Hook. - EP NL YP SL KI SE
Lawrenzia squamata Nees - LE NU GT FR EA EP NL MU YP SL SE
Malva americana L. = *Malvastrum americanum*
Malva behriana Schldl. = *Lavatera plebeia*
Malva brachystachya F.Muell. = *Malvastrum americanum*
Malva caroliniana L. = *Modiola caroliniana*
Malva hederacea Douglas ex Hook. = *Malvella leprosa*

91.269 MALVACEAE (contd)

Malva leprosa Ort. = *Malvella leprosa***Malva nicaeensis* All. - NL SL KI SE**Malva parviflora* L. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Malva pusilla* sensu H.Eichler (1965) = *Malva parviflora**Malva spicata* L. = *Malvastrum americanum**Malva verticillata* sensu J.Black (1952) = *Malva parviflora**Malvastrum americanum* (L.)Torrey - NW LE NU GT FR EA EP NL*Malvastrum spicatum* (L.)A.Gray = *Malvastrum americanum**Malvella leprosa* (Ort.)Krapov. - NL MU YP*Malvella leprosa* (Ort.)Krapov. var. *hederacea* (Douglas ex Hook.)Schumann = *Malvella leprosa***Modiola caroliniana* (L.)Don - SL SE*Modiola multifida* Moench = *Modiola caroliniana***Pavonia coccinea* Cav. - SL**Pavonia hastata* Cav. - FR SL*Plagianthus berthae* F.Muell. = *Lawrenzia berthae**Plagianthus glomeratus* (Hook.)Benth. = *Lawrenzia glomerata**Plagianthus incanus* J.Black = *Lawrenzia squamata**Plagianthus microphyllus* F.Muell. = *Lawrenzia squamata**Plagianthus pulchellus* (Willd.)Hook.f. = *Gynatrix pulchella**Plagianthus spicatus* (Hook.)Benth. = *Lawrenzia spicata**Plagianthus spicatus* (Hook.)Benth. var. *pubescens* Benth. = *Lawrenzia glomerata**Plagianthus squamatus* (Nees)Benth. = *Lawrenzia squamata**Radyera farragei* (F.Muell.)Fryx. & Hashmi - NW FR EP NL MU YP SL*Selenothamnus squamatus* (Nees)Melville = *Lawrenzia squamata**Sida ammophila* F.Muell. ex J.H. Willis - NW NU LE GT FR EA EP MU*Sida calyxhymania* Gay ex DC. - NW LE*Sida calyxhymania* Gay ex DC. var. *calyxhymania* = *Sida calyxhymania**Sida calyxhymania* Gay ex DC. var. *ferruginea* Pritzel = *Sida calyxhymania**Sida cardiophylla* sensu J.Black (1952), partly = *Abutilon halophilum**Sida cardiophylla* sensu J.Black (1952), partly = *Sida corrugata* var. A*Sida corrugata* Lindley var. A - ?NW LE NU GT EA EP NL MU*Sida corrugata* Lindley var. *angustifolia* Benth. - EP NL MU YP SL SE*Sida corrugata* Lindley var. *corrugata* - FR NL MU SL*Sida corrugata* Lindley var. *goniocarpa* F.Muell. ex Benth. = *Sida goniocarpa**Sida corrugata* Lindley var. *nematopoda* (F.Muell.)J.Black = *Sida fibulifera**Sida corrugata* Lindley var. *ovata* Benth. = *Sida cunninghamii**Sida corrugata* Lindley var. *pedunculata* J.Black = *Sida cunninghamii**Sida corrugata* Lindley var. *trichopoda* (F.Muell.)Benth. = *Sida trichopoda**Sida corrugata* sensu J.Black (1926), partly = *Sida corrugata* var. A*Sida cryphiopetala* F.Muell. = ?*Sida phaeotricha**Sida cryptopetala* F.Muell. = *Abutilon cryptopetalum**Sida cunninghamii* C.White - NW LE FR*Sida fibulifera* Lindley - NW LE NU GT FR EA EP MU*Sida filiformis* Cunn. - NW LE GT FR*Sida fraseri* Hook. = *Abutilon fraseri**Sida gonlocarpa* (F.Muell. ex Benth.)Domin - LE*Sida hederacea* (Douglas ex Hook.)Torrey ex A.Gray = *Malvella leprosa**Sida intricata* F.Muell. - LE NU GT FR EA EP MU ?SL*Sida leprosa* (Ort.)Schumann var. *hederacea* (Douglas ex Hook.)Schumann = *Malvella leprosa**Sida leprosa* (Ort.)Schumann var. *leprosa* = *Malvella leprosa**Sida leucopetala* F.Muell. = *Abutilon leucopetalum**Sida nematopoda* F.Muell. = *Sida fibulifera**Sida oxycarpa* F.Muell. = *Abutilon oxycarpum* var. *oxycarpum**Sida pedunculata* (J.Black)J.Black = *Sida cunninghamii**Sida petrophila* F.Muell. - LE GT FR EA EP NL MU YP SL*Sida phaeotricha* F.Muell. - NW FR EA EP*Sida pulchella* Willd. = *Gynatrix pulchella**Sida rhombifolia* L. var. *incana* Benth. = *Sida rohlena**Sida rohlena* Domin - NW LE*Sida* sp. B - LE*Sida* sp. C - LE*Sida* sp. D (A.S.Mitchell, 1981), partly = *Sida ammophila**Sida* sp. G - LE

91.269 MALVACEAE (contd)*Sida* sp. K - FR*Sida* sp. aff. *subspicata* F.Muell. - MU*Sida trichopoda* F.Muell. - NW LE FR EA EP*Sida virgata* Hook. var. *phaeotricha* (F.Muell.) Benth. = *Sida phaeotricha**Sida virgata* sensu J.Black (1952) = *Sida ammophila**Sturtia gossypoides* R.Br. = *Gossypium sturtianum* var. *sturtianum***91.271 STERCULIACEAE***Brachychiton gregorii* F.Muell. - NW*Brachychiton populneus* (Schott & Endl.) R.Br. - not in S.Aust.*Commersonia kempeana* F.Muell. = *Rulingia loxophylla**Commersonia loxophylla* (F.Muell.) F.Muell. = *Rulingia loxophylla**Commersonia magniflora* F.Muell. = *Rulingia magniflora**Commersonia tatei* F.Muell. ex Tate - EP*Corchorus longipes* Tate = *Gilesia biniflora**Corethrostylis schulzenii* F.Muell. = *Lasiopetalum schulzenii**Gilesia biniflora* F.Muell. - LE GT FR EA*Hannafordia bisSELLii* - NW GT*Hermannia gilesii* F.Muell. = *Gilesia biniflora**Hymenocapsa longipes* (Tate) J.Black = *Gilesia biniflora**Keraudrenia integrifolia* Steudel - NW*Keraudrenia nephrosperma* (F.Muell.) Benth. - LE*Lasiopetalum baueri* Steetz - EP MU YP SL KI SE*Lasiopetalum behrii* F.Muell. - FR EP NL MU YP SL KI SE*Lasiopetalum discolor* Hook. - EP YP SL KI SE*Lasiopetalum schulzenii* (F.Muell.) Benth. - EP YP KI SE*Lasiopetalum schulzenii* (F.Muell.) Benth. - EP YP KI SE*Lasiopetalum* sp. 'cordate-leaved' - EP KI*Lasiopetalum* × *tepperi* F.Muell. - EP YP KI*Melhanian incana* sensu J.Black (1952) = *Melhanian oblongifolia**Melhanian oblongifolia* F.Muell. - NW LE FR EA*Pocilodermis populnea* Schott & Endl. = *Brachychiton populneus**Rulingia crauophylla* F.Muell. - EP*Rulingia kempeana* (F.Muell.) F.Muell. ex J.Black = *Rulingia loxophylla**Rulingia loxophylla* F.Muell. - NW LE ?MU*Rulingia magniflora* F.Muell. - NW*Seringia nephrosperma* F.Muell. = *Keraudrenia nephrosperma**Sterculia diversifolia* Don var. (?) *occidentalis* Benth. = *Brachychiton gregorii**Thomasia petalocalyx* F.Muell. - EP NL MU YP SL KI SE**91.276 THYMELAEACEAE***Calyptristegia gracilis* R.Br. = *Pimelea curviflora* ssp. *gracilis**Passerina annua* (Salisb.) Wikstr. = *Thymelaea passerina**Pimelea ammodaridis* sensu J.Black (1952) = *Pimelea penicillaris**Pimelea continua* J.Black = *Pimelea simplex* ssp. *continua**Pimelea curviflora* R.Br. ssp. *gracilis* (R.Br.) Threlfall var. *gracilis* - MU SL*Pimelea curviflora* R.Br. ssp. *gracilis* (R.Br.) Threlfall var. *sericea* Benth. - EP NL YP SL*Pimelea curviflora* R.Br. ssp. *micrantha* (F.Muell. ex Meissner) Threlfall - NU FR EP NL MU YP SL KI SE*Pimelea curviflora* R.Br. var. *micrantha* (F.Muell. ex Meissner) Benth. =*Pimelea curviflora* ssp. *micrantha**Pimelea dichotoma* Schldl. = *Pimelea flava* ssp. *dichotoma**Pimelea dioica* C.White = *Pimelea penicillaris**Pimelea elongata* Threlfall - LE FR*Pimelea flava* R.Br. ssp. *dichotoma* (Schldl.) Threlfall - FR EP MU YP SL KI SE*Pimelea flava* R.Br. ssp. *flava* - KI SE*Pimelea glabra* sensu Carolin (1981) = *Pimelea microcephala* ssp. *glabra**Pimelea glauca* R.Br. - FR EP NL MU YP SL KI SE*Pimelea humilis* R.Br. - FR EP NL MU SL SE*Pimelea husseyana* F.Muell. ex Ewart = *Pimelea phyllicoides**Pimelea ligustrina* Labill. ssp. *ligustrina* - SE*Pimelea ligustrina* Labill. var. *macrostegia* Benth. = *Pimelea macrostegia**Pimelea linifolia* Smith ssp. *linifolia* - FR EP SL SE

91.276 THYMELAEACEAE (contd)

- Pimelea macrostegia* (Benth.) J.Black - KI
Pimelea micrantha F.Muell. ex Meissner = *Pimelea curviflora* ssp. *micrantha*
Pimelea microcephala R.Br. ssp. *glabra* (F.Muell. & Tate ex J.Black) Threlfall - NW
Pimelea microcephala R.Br. ssp. *microcephala* -
 NW LE NU GT FR EA EP NL MU YP SL
Pimelea microcephala R.Br. var. *glabra* F.Muell. & Tate ex J.Black =
Pimelea microcephala ssp. *glabra*
Pimelea muelleri Meissner = *Pimelea curviflora* ssp. *gracilis* var. *sericea*
Pimelea octophylla R.Br. ssp. *octophylla* - ?FR EP MU ?YP SL KI SE
Pimelea octophylla R.Br. ssp. *petraea* (Meissner) Threlfall - ?MU FR EP NL ?YP
Pimelea octophylla R.Br. ssp. *subvillifera* Threlfall - EP ?NL ?MU ?YP
Pimelea penicillaris F.Muell. - LE FR ?EP
Pimelea petraea Meissner = *Pimelea octophylla* ssp. *petraea*
Pimelea petrophila F.Muell. - FR EA EP NL
Pimelea phyllicoides Meissner - EP MU SL KI SE
Pimelea serpyllifolia R.Br. - NU EP NL MU YP SL KI SE
Pimelea simplex F.Muell. ssp. *continua* (J.Black) Threlfall - LE GT FR EA EP NL
Pimelea simplex F.Muell. ssp. *simplex* - LE NU GT FR EA EP MU
Pimelea spathulata Labill. = *Pimelea linifolia* ssp. *linifolia*
Pimelea stricta Meissner - FR EP NL MU SL KI SE
Pimelea trichostachya Lindley - NW LE FR EA EP MU
Pimelea villifera sensu J.Black (1952) = *Pimelea octophylla* ssp. *subvillifera*
Pimelea williamsonii J.Black - EP MU
Stellera annua Salisb. = *Thymelaea passerina*
Stellera passerina L. = *Thymelaea passerina*
 **Thymelaea passerina* (L.) Coss. & Germ. - NL MU SL SE

91.282 VIOLACEAE

- Clelandia convallis* J.Black = *Hybanthus floribundus* ssp. *floribundus*
Erpetion spathulatum Don = *Viola sieberiana*
Hybanthus aurantiacus (F.Muell. ex Benth.) F.Muell. - NW LE ?FR
Hybanthus enneaspermus (L.) F.Muell. - not in S.Aust.
Hybanthus enneaspermus (L.) F.Muell. var. *aurantiacus* (F.Muell. ex Benth.) F.Muell. =
Hybanthus aurantiacus
Hybanthus enneaspermus sensu J.Black (1952) = *Hybanthus aurantiacus*
Hybanthus floribundus (Lindley) F.Muell. ssp. *floribundus* - FR EP NL MU YP SL KI SE
Hybanthus miniatus F.Muell. & Tate = *Hybanthus aurantiacus*
Hybanthus monopetalus (Schultes) Domin - NW GT FR EA EP NL SL
Hybanthus tatei F.Muell. = *Hybanthus monopetalus*
Hymenanchera angustifolia R.Br. ex DC. = *Hymenanchera dentata*
Hymenanchera banksii F.Muell. = *Hymenanchera dentata*
Hymenanchera dentata R.Br. var. *angustifolia* Benth. = *Hymenanchera dentata*
Hymenanchera dentata R.Br. ex DC. - FR NL MU SL SE
Ionidium aurantiacum F.Muell. ex Benth. = *Hybanthus aurantiacus*
Ionidium australe Behr = *Hybanthus floribundus* ssp. *floribundus*
Ionidium enneaspermum (L.) Vent. = *Hybanthus enneaspermus*
Ionidium floribundum (Lindley) Walp. = *Hybanthus floribundus* ssp. *floribundus*
Ionidium monopetalum Schultes = *Hybanthus monopetalus*
Ionidium suffruticosum (L.) Ging. = *Hybanthus enneaspermus*
Pigea floribunda Lindley = *Hybanthus floribundus* ssp. *floribundus*
Viola betonicifolia Smith ssp. *betonicifolia* - SL SE
Viola cleistogamoides (L.Adams) Seppelt - SL SE
Viola enneasperma L. = *Hybanthus enneaspermus*
Viola hederacea Labill. - SL KI SE
Viola hederacea Labill. ssp. *cleistogamoides* L.Adams = *Viola cleistogamoides*
Viola hederacea Labill. ssp. *hederacea* = *Viola hederacea*
Viola hederacea Labill. ssp. *seppeltiana* L.Adams = *Viola sieberiana*
Viola hederacea Labill. ssp. *seppeltiana* L.Adams = *Viola sieberiana*
Viola hederacea Labill. ssp. *sieberiana* (Sprengel) L.Adams = *Viola sieberiana*
Viola hederacea Labill. var. *sieberi* (Hook.) Becker = *Viola sieberiana*
 **Viola odorata* L. - FR SL NL SE
Viola sieberi Hook. = *Viola sieberiana*
Viola sieberiana Sprengel - SL KI SE

91.289 CISTACEAE*Cistus hirsutus* Lam. = *Cistus psilosepalus***Cistus psilosepalus* Sweet - SL**91.294 TAMARICACEAE****Tamarix aphylla* (L.) Karst - EP ?MU YP SL*Thuja aphylla* L. = *Tamarix aphylla***91.295 FRANKENIACEAE***Frankenia angustipetala* Summerh. = *Frankenia serpyllifolia**Frankenia annua* Summerh. var. *orthotricha* J.Black = *Frankenia cupularis**Frankenia cinerea* A.DC. - NW NU*Frankenia connata* Sprague = *Frankenia serpyllifolia**Frankenia cordata* J.Black - NW*Frankenia crispa* J.Black - FR EA EP*Frankenia cupularis* Summerh. - LE GT EA*Frankenia densa* Summerh. = *Frankenia serpyllifolia**Frankenia desertorum* Summerh. - not in S.Aust.*Frankenia eremophila* (J.Black) Summerh. = *Frankenia serpyllifolia**Frankenia flabellata* Sprague - LE EP*Frankenia foliosa* J.Black - LE GT FR EP SL*Frankenia fruticulosa* DC. = *Frankenia pauciflora* var. *fruticulosa**Frankenia fruticulosa* sensu J.Black (1926) = *Frankenia sessilis**Frankenia gracilis* Summerh. = *Frankenia serpyllifolia**Frankenia granulata* J.Black = *Frankenia subteres**Frankenia hamata* Summerh. = *Frankenia serpyllifolia**Frankenia latior* Sprague & Summerh. ex Summerh. = *Frankenia serpyllifolia**Frankenia maidenii* Ostenf. = *Frankenia cinerea**Frankenia muscosa* J.Black = *Frankenia foliosa**Frankenia orthotricha* (J.Black) J.Black = *Frankenia cupularis**Frankenia pauciflora* DC. var. *fruticulosa* (DC.) Summerh. - LE EP YP SL KI*Frankenia pauciflora* DC. var. *gunnii* Summerh. - LE EP NL MU YP SL KI SE*Frankenia pauciflora* DC. var. *incrustedata* J.Black = *Frankenia pauciflora* var. *fruticulosa**Frankenia pauciflora* DC. var. *longifolia* Summerh. =*Frankenia pauciflora* var. not established*Frankenia pauciflora* DC. var. *serpyllifolia* (Lindley) Benth. = *Frankenia serpyllifolia**Frankenia pauciflora* DC. var. *thymoides* Benth. = *Frankenia foliosa**Frankenia pauciflora* DC. var. *trichosticha* Summerh. =*Frankenia pauciflora* var. *fruticulosa**Frankenia planifolia* Sprague & Summerh. ex Summerh. = *Frankenia serpyllifolia**Frankenia plicata* Melville - LE GT*Frankenia pseudo-flabellata* Summerh. = *Frankenia cupularis***Frankenia pulverulenta* L. - NL YP SL*Frankenia serpyllifolia* Lindley - NW LE NU GT FR EA EP NL*Frankenia serpyllifolia* Lindley var. *eremophila* J.Black = *Frankenia serpyllifolia**Frankenia sessilis* Summerh. - NU EP YP*Frankenia sessilis* Summerh. var. *major* Summerh. = *Frankenia sessilis**Frankenia speciosa* Summerh. = *Frankenia cordata**Frankenia subteres* Summerh. - LE FR*Frankenia uncinata* Sprague & Summerh. ex Summerh. = *Frankenia serpyllifolia***91.296 ELATINACEAE***Bergia ammannioides* Roxb. - LE*Bergia ammannioides* Roxb. var. *triandra* Wight = *Bergia trimera**Bergia ammannioides* Roxb. var. *trimera* (Fischer & C.Meyer) Benth. =*Bergia trimera**Bergia diaheiron* Verdon ex G.Leach - LE*Bergia occultripetala* G.Leach - LE*Bergia perennis* (F.Muell.) F.Muell. ex Benth. form A = *Bergia perennis* ssp. *obtusifolia**Bergia perennis* (F.Muell.) F.Muell. ex Benth. form C = *Bergia perennis* ssp. *exigua**Bergia perennis* (F.Muell.) F.Muell. ex Benth. ssp. *exigua* G.Leach - LE*Bergia perennis* (F.Muell.) F.Muell. ex Benth. ssp. *obtusifolia* G.Leach - NW*Bergia* sp. aff. *pedicellaris* (F.Muell.) F.Muell. ex Benth. = *Bergia perennis* ssp. *exigua**Bergia trimera* Fischer & C.Meyer - NW LE GT EA*Bergia tripetala* F.Muell. = *Bergia trimera*

91.296 ELATINACEAE (contd)

- Elatine americana* (Pursh) Arn. var. *australiensis* Benth. = *Elatine gratioloides*
Elatine gratioloides Cunn. - FR EP MU SL SE
Elatine perennis F.Muell. = *Bergia perennis*

91.302 CUCURBITACEAE

- Bryonia scabrella* L. = *Mukia maderaspatana*
 **Citrullus colocynthis* (L.) Schrader - LE FR EP MU SL
 **Citrullus lanatus* (Thunb.) Mansf. & Nakai - LE GT FR EA EP NL MU YP SL SE
Citrullus vulgaris Schrader ex Ecklon & Zeyher = *Citrullus lanatus*
Cucumis chaete sensu J.Black (1957) = *Cucumis melo*
Cucumis colocynthis L. = *Citrullus colocynthis*
Cucumis jucundus F.Muell. = *Cucumis melo*
Cucumis maderaspatanus L. = *Mukia maderaspatana*
Cucumis melo L. - LE
Cucumis melo L. ssp. *agrestis* (Naudin) Grebensch. = *Cucumis melo*
Cucumis melo L. var. *agrestis* Naudin = *Cucumis melo*
Cucumis muelleri Naudin = *Mukia micrantha*
 **Cucumis myriocarpus* Naudin - LE NU GT FR EA EP NL MU YP SL KI SE
Cucumis picrocarpus F.Muell. = *Cucumis melo*
Cucumis pubescens sensu T.L.Mitchell = *Cucumis melo*
Cucumis trigonus Benth. = *Cucumis melo*
Cucurbita citrullus L. = *Citrullus lanatus*
Cucurbita micrantha F.Muell. = *Mukia micrantha*
 **Cucurbita pepo* L. - LE
 **Ecballium elaterium* (L.) A.Rich. - NL MU SL SE
Melothria maderaspatana (L.) Cogn. = *Mukia maderaspatana*
Melothria micrantha (F.Muell.) F.Muell. ex Cogn. = *Mukia micrantha*
Melothria muelleri (Naudin) Benth. = *Mukia micrantha*
Momordica balsamina L. - LE
Momordica elaterium L. = *Ecballium elaterium*
Momordica lanata Thunb. = *Citrullus lanatus*
Mukia maderaspatana (L.) M.Roemer - NW LE GT FR
Mukia micrantha (F.Muell.) F.Muell. - LE MU SE
Mukia scabrella (L.) Arn. = *Mukia maderaspatana*
Zehneria micrantha (F.Muell.) F.Muell. = *Mukia micrantha*

91.303 LYTHRACEAE

- Ammannia australasica* F.Muell. = *Ammannia multiflora* var. *multiflora*
Ammannia multiflora Roxb. var. *multiflora* - LE MU
Lythrum flexuosum sensu J.Black (1952) = *Lythrum junceum*
Lythrum graefferi Ten. = *Lythrum junceum*
Lythrum hyssopifolia L. - NW LE GT EA EP NL MU YP SL KI SE
 **Lythrum junceum* Banks & Sol. - ?FR SL
Lythrum salicaria L. - LE MU SL SE

91.306 MYRTACEAE

- Baeckea behrii* (Schldl.) F.Muell. - NW EP NL MU SL SE
Baeckea calycina Lindley = *Thryptomene calycina*
Baeckea crassifolia Lindley - FR EA EP NL MU YP SL KI SE
Baeckea crassifolia Lindley var. *pentamera* J.Black = *Baeckea crassifolia*
Baeckea diffusa Sieber ex DC. = *Baeckea ramosissima* ssp. *ramosissima*
Baeckea ericaea F.Muell. ex Benth. - EP MU YP KI SE
Baeckea microphylla Sieber ex Sprengel = *Micromyrtus ciliata*
Baeckea microphylla Sieber ex Sprengel var. *ericaea* F.Muell. = *Baeckea ericaea*
Baeckea phyllicoides Cunn. ex Schauer = *Kunzea ericoides*
Baeckea plicata F.Muell. = *Micromyrtus ciliata*
Baeckea ramosissima Cunn. ssp. *ramosissima* - SL KI SE
Baeckea sp. = *Baeckea tuberculata*
Baeckea tuberculata Trudgen - NW
Cajuputi pubescens (Schauer) Skeels = *Melaleuca lanceolata*
Callistemon australis (Benth.) Cheel = *Callistemon sieberi*
Callistemon brachyandrus Lindley - MU
Callistemon coccineus F.Muell. = *Callistemon rugulosus*

91.306 MYRTACEAE (contd)

Callistemon coccineus F.Muell. var. *laevifolius* (F.Muell. ex Miq.) F.Muell. =

Callistemon rugulosus var. *laevifolius*

Callistemon laevifolius (F.Muell. ex Miq.) Cheel = *Callistemon rugulosus* var. *laevifolius*

Callistemon macropunctatus (Dum.-Cours.) Court var. *laevifolius* (F.Muell. ex Miq.) H.Eichler =

Callistemon rugulosus var. *laevifolius*

Callistemon macropunctatus sensu Jessop (1985) = *Callistemon rugulosus*

Callistemon paludosus F.Muell. - SL ?MU

Callistemon paludosus F.Muell. = *Callistemon sieberi*

Callistemon rugulosus (Willd. ex Link) DC. var. *laevifolius* F.Muell. ex Miq. - EP

Callistemon rugulosus (Willd. ex Link) DC. var. *rugulosus* - FR EP NL MU YP SL KI SE

Callistemon salignus (Smith) Sweet var. *australis* Benth. = *Callistemon sieberi*

Callistemon sieberi DC. - NL SL

Callistemon teretifolius F.Muell. - FR EA EP MU NL SL SE

Calycothrix behriana Schldl. = *Calytrix tetragona*

Calycothrix leucantha Miq. = *Calytrix tetragona*

Calycothrix longiflora F.Muell. = *Calytrix longiflora*

Calycothrix monticola Miq. = *Calytrix tetragona*

Calycothrix muelleri Miq. = *Calytrix tetragona*

Calycothrix rosea Miq. = *Calytrix tetragona*

Calycothrix scabra DC. var. *minor* Schldl. = *Calytrix tetragona*

Calycothrix schlechtendahlui Miq. = *Calytrix tetragona*

Calytrix alpestris (Lindley) Court - MU SE

Calytrix carinata Craven - NW

Calytrix glaberrima (F.Muell.) Craven - SL KI

Calytrix gypsophila Craven - NW NU GT

Calytrix involucrata J.Black - EP NL YP SL

Calytrix longiflora (F.Muell.) Benth. - not in S.Aust.

Calytrix longiflora sensu Jessop (1984) = *Calytrix carinata*

Calytrix smeatoniana (F.Muell.) Craven - KI

Calytrix tetragona Labill. - FR EA EP NL MU YP SL KI SE

Camphoromyrtus behrii Schldl. = *Baeckea behrii*

Darwinia homoranthoides (F.Muell.) J.Black - EP

Darwinia micropetala (F.Muell.) Benth. - NW NU GT EP KI SE

Darwinia schuermannii (F.Muell.) Benth. = *Darwinia homoranthoides*

Eucalyptus acervula Hook.f. = *Eucalyptus ovata*

Eucalyptus aff. *dichromophloia* sensu Boomsma (1981) - NW

Eucalyptus albens Benth. - FR

Eucalyptus anceps (Maiden) Blakely = *Eucalyptus rugosa*

Eucalyptus anceps sensu Boomsma (1981), partly = *Eucalyptus conglobata*

Eucalyptus anceps sensu Boomsma (1981), partly = *Eucalyptus dumosa*

Eucalyptus angulosa Schauer = *Eucalyptus incrassata* var. *angulosa*

Eucalyptus aromaphloia Pryor & J.H.Willis - not in S.Aust.

Eucalyptus australis D. & S.Carr - status uncertain

Eucalyptus baxteri (Benth.) Maiden & Blakely ex J.Black - MU SL KI SE

Eucalyptus baxteri (Benth.) Maiden & Blakely ex J.Black var. *pedicellata* Maiden & Blakely =

Eucalyptus baxteri

Eucalyptus behriana F.Muell. - EP NL MU SE

Eucalyptus behriana F.Muell. var. *purpurascens* F.Muell. ex Benth. =

Eucalyptus lansdowneana ssp. *lansdowneana*

Eucalyptus bicolor Cunn. ex Hook. = *Eucalyptus largiflorens*

Eucalyptus bicolor Cunn. ex Hook. var. *xanthophylla* Blakely =

Eucalyptus normantonensis

Eucalyptus bicolor Cunn. ex Hook. var. *xanthophylla* sensu Blakely (1965), partly =

Eucalyptus sparsa

Eucalyptus brachycalyx Blakely - GT EP NL MU YP

Eucalyptus brachycalyx Blakely var. *chindoo* Blakely = *Eucalyptus brachycalyx*

Eucalyptus brachycalyx Blakely var. *protrusa* (J.Black) H.Eichler = *Eucalyptus brachycalyx*

Eucalyptus brachypoda sensu Benth. (1867) = *Eucalyptus microtheca*

Eucalyptus burracoppinensis Maiden & Blakely - ?NW

Eucalyptus cajuputee F.Muell. ex Miq. = *Eucalyptus odorata*

Eucalyptus calcareana Boomsma - NU EP

Eucalyptus calcicultrix (F.Muell. ex Miq.) F.Muell. ex Blakely = *Eucalyptus porosa*

Eucalyptus calcicultrix (F.Muell. ex Miq.) F.Muell. ex Blakely var. *obscura* Blakely -

status unknown

91.306 MYRTACEAE (contd)

- Eucalyptus calcicultrix* (F.Muell. ex Miq.) F.Muell. ex Blakely
var. *porosa* (F.Muell. ex Miq.) Blakely = *Eucalyptus porosa*
- **Eucalyptus calophylla* Lindley - ?SL
Eucalyptus calycogona Turcz. - FR EP NL MU YP SL SE
Eucalyptus calycogona Turcz. var. *spaffordii* Blakely = *Eucalyptus calycogona*
Eucalyptus calycogona Turcz. var. *staffordii* Blakely = *Eucalyptus calycogona*
Eucalyptus camaldulensis Dehnh. var. *camaldulensis* - FR EA EP NL MU YP SL KI SE
Eucalyptus camaldulensis Dehnh. var. *obtusa* Blakely - NW LE FR EA
Eucalyptus centralis D. & S.Carr - status uncertain
Eucalyptus cladocalyx F.Muell. - FR EP NL KI
Eucalyptus clelandii (Maiden) Maiden - not in S.Aust.
Eucalyptus cneorifolia DC. - SL KI
Eucalyptus concinna Maiden & Blakely - NW NU GT EP
Eucalyptus conglobata (Benth.) Maiden - FR EP NL MU YP SL KI SE
Eucalyptus conglobata (Benth.) Maiden var. *anceps* Maiden = *Eucalyptus rugosa*
Eucalyptus connerensis D. & S.Carr - status uncertain
Eucalyptus coolabah Blakely & Jacobs = *Eucalyptus microtheca*
Eucalyptus coolabah Blakely & Jacobs var. *arida* Blakely = *Eucalyptus microtheca*
Eucalyptus coriacea Cunn. = *Eucalyptus pauciflora* ssp. *pauciflora*
Eucalyptus corynocalyx F.Muell. = *Eucalyptus cladocalyx*
Eucalyptus cosmophylla F.Muell. - SL KI
Eucalyptus cosmophylla F.Muell. var. *leprosula* F.Muell. ex Miq. =
Eucalyptus cosmophylla
Eucalyptus cosmophylla F.Muell. var. *rostrigera* F.Muell. ex Maiden =
Eucalyptus cosmophylla
Eucalyptus costata F.Muell. = *Eucalyptus incrassata* var. *angulosa*
Eucalyptus cyanophylla Brooker - MU
Eucalyptus dichromophloia sensu J.Black (1952) = *Eucalyptus* aff. *dichromophloia*
Eucalyptus diversifolia Bonpl. - NU EP YP SL KI SE
Eucalyptus dumosa Cunn. ex Schauer - FR ?EA EP NL MU SE
Eucalyptus dumosa Cunn. ex Schauer var. *conglobata* Benth. = *Eucalyptus conglobata*
Eucalyptus dumosa sensu Boomsma (1972), partly = *Eucalyptus cyanophylla*
Eucalyptus elaeophora F.Muell. = *Eucalyptus goniocalyx*
Eucalyptus eremaea D. & S.Carr - status uncertain
Eucalyptus eremicola Boomsma - NW
Eucalyptus erythrocalyx Oldfield & F.Muell. = *Eucalyptus pyriformis* ssp. *youngiana*
Eucalyptus eudesmioides sensu J.Black (1952) = *Eucalyptus gongylocarpa*
Eucalyptus eudesmioides sensu N.Burb. (1947) = *Eucalyptus gongylocarpa*
Eucalyptus ewartiana Maiden - NW
Eucalyptus fasciculosa F.Muell. - MU SL KI SE
Eucalyptus flindersii Boomsma - FR EA
Eucalyptus flocktoniae (Maiden) Maiden - EP
Eucalyptus foecunda Schauer - NW NU GT FR EA EP NL MU YP SL KI SE
Eucalyptus fruticetorum F.Muell. ex Miq. = *Eucalyptus odorata*
Eucalyptus gamophylla F.Muell. - NW
Eucalyptus gillienii sensu Chippendale (1988), partly = *Eucalyptus incurva*
Eucalyptus gillii Maiden - ?NW LE FR EA
Eucalyptus gillii Maiden var. *petiolaris* Maiden = *Eucalyptus gillii*
- **Eucalyptus globulus* Labill. - SL
Eucalyptus gongylocarpa Blakely - NW
Eucalyptus goniocalyx F.Muell. ex Miq. - FR NL SL
Eucalyptus gracilis F.Muell. - NW NU GT FR EA EP NL MU YP SL KI SE
Eucalyptus gracilis F.Muell. var. *erecta* Blakely = *Eucalyptus gracilis*
Eucalyptus gunnii Hook.f. var. *rubida* (Deane & Maiden) Maiden = *Eucalyptus rubida*
Eucalyptus gunnii sensu F.Muell. (1860) = *Eucalyptus ovata*
Eucalyptus helmii sensu H.Eichler (1965) = *Eucalyptus striatocalyx*
Eucalyptus hemiphloia F.Muell. ex Benth. var. *albens* (Benth.) F.Muell. ex Maiden =
Eucalyptus albens
Eucalyptus hemiphloia F.Muell. ex Benth. var. *microcarpa* Maiden =
Eucalyptus microcarpa
Eucalyptus hemiphloia F.Muell. ex Benth. var. *purpurascens* (F.Muell. ex Benth.) Maiden =
Eucalyptus lansdowneana ssp. *lansdowneana*
Eucalyptus huberiana Naudin - not in S.Aust.
Eucalyptus huberiana sensu Boomsma (1972) = *Eucalyptus viminalis* ssp. *cygnetensis*

91.306 MYRTACEAE (contd)

- Eucalyptus incrassata* Labill. var. *angulosa* (Schauer) Benth. - ?GT EP MU
Eucalyptus incrassata Labill. var. *incrassata* - NU EP NL MU YP SL KI SE
Eucalyptus incrassata Labill. var. *protrusa* J.Black = *Eucalyptus brachycalyx*
Eucalyptus incurva Boomsma - NW
Eucalyptus intertexta R.T.Baker - NW LE GT FR EA EP MU
Eucalyptus intertexta R.T.Baker var. *diminuta* Blakely = *Eucalyptus intertexta*
Eucalyptus intertexta R.T.Baker var. *fruticosa* Blakely & Jacobs = *Eucalyptus intertexta*
Eucalyptus intertexta R.T.Baker var. *fruticosa* sensu Boomsma (1972) = *Eucalyptus sparsa*
Eucalyptus isingiana Maiden = *Eucalyptus pimpiniana*
Eucalyptus jugalis Naudin - hybrid involving *Eucalyptus leucoxydon*
Eucalyptus kalangadoensis Maiden & Blakely - hybrid involving *Eucalyptus ovata*
Eucalyptus kingsmillii (Maiden) Maiden & Blakely - NW
Eucalyptus lansdowneana F.Muell. & J.E.Brown ex J.E.Brown
 ssp. *albopurpurea* Boomsma - EP KI
Eucalyptus lansdowneana F.Muell. & J.E.Brown ex J.E.Brown ssp. *lansdowneana* - EP
Eucalyptus lansdowneana F.Muell. & J.E.Brown ex J.E.Brown var. *leucantha* Blakely =
 Eucalyptus lansdowneana ssp. *albopurpurea*
Eucalyptus lansdowneana sensu Boomsma (1972) =
 Eucalyptus lansdowneana ssp. *albopurpurea*
Eucalyptus largiflorens F.Muell. - ?LE FR EA NL MU SL SE
Eucalyptus largiflorens F.Muell. var. *xanthophylla* (Blakely) Cameron =
 Eucalyptus normantonensis
Eucalyptus lenziana D. & S.Carr - status uncertain
Eucalyptus leptophylla F.Muell. ex Miq. = *Eucalyptus foecunda*
Eucalyptus leptophylla F.Muell. ex Miq. var. *densa* Blakely = *Eucalyptus foecunda*
Eucalyptus leucoxydon F.Muell. - FR EP NL MU SL KI SE
Eucalyptus leucoxydon F.Muell. ssp. *megalocarpa* Boland = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. ssp. *petiolaris* Boland = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. ssp. *pruinosa* (F.Muell. ex Miq.) Boland =
 Eucalyptus leucoxydon
Eucalyptus leucoxydon F.Muell. var. *angulata* Benth. = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. var. *erythrostema* F.Muell. ex Miq. =
 Eucalyptus leucoxydon
Eucalyptus leucoxydon F.Muell. var. *macrocarpa* J.E.Brown, partly = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. var. *pauperita* J.E.Brown = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. var. *pluriflora* F.Muell. ex Miq. = *Eucalyptus porosa*
Eucalyptus leucoxydon F.Muell. var. *pruinosa* F.Muell. ex Miq. = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. var. *rostellata* F.Muell. ex Miq. = *Eucalyptus leucoxydon*
Eucalyptus leucoxydon F.Muell. var. *rugulosa* F.Muell. ex Miq. = *Eucalyptus leucoxydon*
Eucalyptus macrorhyncha F.Muell. ex Benth. ssp. *macrorhyncha* - NL
Eucalyptus macrorhyncha F.Muell. = *Eucalyptus macrorhyncha* ssp. *macrorhyncha*
Eucalyptus mannensis Boomsma - NW
Eucalyptus mcintyrensis Maiden - hybrid involving *Eucalyptus ovata*
Eucalyptus microcarpa (Maiden) Maiden - FR NL SL SE
Eucalyptus microtheca F.Muell. - NW LE GT EA
Eucalyptus morrisii sensu J.Black (1952) = *Eucalyptus flindersii*
Eucalyptus muelleriana Howitt - not in S.Aust.
Eucalyptus nitida sensu Boomsma (1981) = *Eucalyptus willisii*
Eucalyptus normantonensis Maiden & Cambage - not in S.Aust.
Eucalyptus obliqua L'Hér. var. *depressa* Blakely = *Eucalyptus obliqua* var. *obliqua*
Eucalyptus obliqua L'Hér. var. *megacarpa* Blakely - SE
Eucalyptus obliqua L'Hér. var. *obliqua* - SL KI SE
Eucalyptus ochrophylla Maiden & Blakely = *Eucalyptus concinna*
Eucalyptus odorata Behr ex Schldl. - FR EP NL MU YP SL KI SE
Eucalyptus odorata Behr ex Schldl. var. *angustifolia* Blakely = *Eucalyptus odorata*
Eucalyptus odorata Behr ex Schldl. var. *caliculatrix* F.Muell. ex Miq. = *Eucalyptus porosa*
Eucalyptus odorata Behr ex Schldl. var. *erythrandra* F.Muell. ex Miq. =
 Eucalyptus lansdowneana ssp. *albopurpurea*
Eucalyptus odorata Behr ex Schldl. var. *macrocarpa* Blakely =
 Eucalyptus lansdowneana ssp. *albopurpurea*
Eucalyptus odorata Behr ex Schldl. var. *purpurascens* (F.Muell. ex Benth.) Maiden =
 Eucalyptus lansdowneana ssp. *lansdowneana*
Eucalyptus odorata Behr ex Schldl. var. *refracta* Blakely = *Eucalyptus odorata*
Eucalyptus oldfieldii sensu J.Black (1926) = *Eucalyptus ewartiana*

91.306 MYRTACEAE (contd)

- Eucalyptus oleosa* F.Muell. ex Miq. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Eucalyptus oleosa F.Muell. ex Miq. var. *angustifolia* Maiden = *Eucalyptus oleosa*
Eucalyptus oleosa F.Muell. ex Miq. var. *flocktoniae* Maiden = *Eucalyptus flocktoniae*
Eucalyptus oleosa F.Muell. ex Miq. var. *glauca* sensu J.Black (1952) = *Eucalyptus socialis*
Eucalyptus oleosa F.Muell. ex Miq. var. *peeneri* Blakely = *Eucalyptus peeneri*
Eucalyptus opaca D. & S.Carr - status uncertain
Eucalyptus orbifolia F.Muell. - NW
Eucalyptus orientalis D. & S.Carr - status uncertain
Eucalyptus ovata Labill. - SL KI SE
Eucalyptus ovata Labill. var. *grandiflora* Maiden = *Eucalyptus ovata*
Eucalyptus oxymitra Blakely - NW
Eucalyptus pachyphylla F.Muell. - not in S.Aust.
Eucalyptus pachyphylla sensu Boomsma (1972) = *Eucalyptus kingsmillii*
Eucalyptus pachyphylla sensu J.Black (1952) = *Eucalyptus burracoppinensis*
Eucalyptus paludosa R.T.Baker = *Eucalyptus ovata*
Eucalyptus paniculata Smith var. *fasciculosa* (F.Muell.) Benth. = *Eucalyptus fasciculosa*
Eucalyptus pauciflora Sieber ex Sprengel ssp. *pauciflora* - SE
Eucalyptus peeneri (Blakely) Pryor & L.Johnson ex Boomsma - NW NU GT
Eucalyptus pileata sensu J.Black (1952), partly = *Eucalyptus cyanophylla*
Eucalyptus pimpiniana Maiden - NW NU GT
Eucalyptus polybractea R.T.Baker - not in S.Aust.
Eucalyptus polycarpa F.Muell. var. *oligocarpa* Blakely & Jacobs =
Eucalyptus aff. *dichromophloia*
Eucalyptus porosa F.Muell. ex Miq. - GT FR EA EP NL MU YP SL SE
Eucalyptus pryoriana sensu H.Eichler (1965) = *Eucalyptus viminalis* ssp. *cygnetensis*
Eucalyptus pyriformis Turcz. ssp. *youngiana* (F.Muell.) Boomsma - NW NU GT EP
Eucalyptus pyriformis Turcz. var. *kingsmillii* Maiden = *Eucalyptus kingsmillii*
Eucalyptus pyrophora Benth. = *Eucalyptus terminalis*
Eucalyptus remota Blakely - KI
Eucalyptus rostrata Schldl. = *Eucalyptus camaldulensis* var. *camaldulensis*
Eucalyptus rubida Deane & Maiden - SL
Eucalyptus rugosa R.Br. ex Blakely - NU EP MU YP SL KI SE
Eucalyptus santalifolia F.Muell. = *Eucalyptus diversifolia*
Eucalyptus santalifolia F.Muell. var. *baxteri* Benth. = *Eucalyptus baxteri*
Eucalyptus socialis F.Muell. ex Miq. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Eucalyptus sparsa Boomsma - NW
Eucalyptus striatocalyx W.Fitzg. - NW NU GT EP
Eucalyptus stuartiana sensu Benth. (1866), partly = *Eucalyptus ovata*
Eucalyptus symonii D. & S.Carr - status uncertain
Eucalyptus terminalis F.Muell. - NW LE
Eucalyptus transcontinentalis Maiden - not in S.Aust.
Eucalyptus transcontinentalis sensu Blakely (1965) = *Eucalyptus socialis*
Eucalyptus trivalva Blakely = *Eucalyptus trivalvis*
Eucalyptus trivalvis Blakely - NW GT EP
Eucalyptus viminalis Labill. ssp. *cygnetensis* Boomsma - EP MU SL KI SE
Eucalyptus viminalis Labill. ssp. *viminalis* - SL
Eucalyptus viminalis Labill. var. *diversifolia* Benth. = *Eucalyptus diversifolia*
Eucalyptus viminalis Labill. var. *huberiana* (Naudin) N.Burb. = *Eucalyptus huberiana*
Eucalyptus viminalis Labill. var. *microcarpa* F.Muell. = *Eucalyptus rubida*
Eucalyptus viminalis Labill. var. *racemosa* sensu J.Black (1952) =
Eucalyptus viminalis ssp. *cygnetensis*
Eucalyptus viridis R.T.Baker - FR EA
Eucalyptus websterana sensu Jessop (1986) = *Eucalyptus orbifolia*
Eucalyptus willisii Ladiges, Humphries & Brooker - SE
Eucalyptus wyolensis Boomsma - NW
Eucalyptus yalatensis Boomsma - NU EP ?YP
Eucalyptus youngiana F.Muell. = *Eucalyptus pyriformis* ssp. *youngiana*
Eucalyptus yumbarrana Boomsma ssp. *striata* Boomsma - NW ?GT
Eucalyptus yumbarrana Boomsma ssp. *yumbarrana* - NW NU GT EP ?NL
Fabricia coriacea F.Muell. ex Miq. = *Leptospermum coriaceum*
Fabricia laevigata Gaertner = *Leptospermum laevigatum*
Genethyllis alpestris Lindley var. *bracteosa* Benth. = *Calytrix alpestris*
Genethyllis micropetala F.Muell. = *Darwinia micropetala*
Genethyllis schuermannii F.Muell. = *Darwinia homoranthoides*

91.306 MYRTACEAE (contd)

- Homoranthus wilhelmii* (F.Muell.) Cheel = *Verticordia wilhelmii*
Imbricaria ciliata Smith = *Micromyrtus ciliata*
Kunzea ericoides (A.Rich.) J. Thompson - ?not in S.Aust.
Kunzea pomifera F.Muell. - MU YP SL KI SE
Leptospermum coriaceum (F.Muell. ex Miq.) Cheel -
 NW NU GT FR EP NL MU YP SL SE
Leptospermum ericoides A.Rich. = *Kunzea ericoides*
Leptospermum fastigiatum S.Moore - NW
Leptospermum juniperinum Smith - not in S.Aust.
Leptospermum juniperinum sensu J.Black (1952) = *Leptospermum* sp. A
 **Leptospermum laevigatum* (Gaertner) F.Muell. - SL SE
Leptospermum laevigatum (Gaertner) F.Muell. var. *minus* F.Muell. ex Benth. =
Leptospermum coriaceum
Leptospermum lanigerum (Aiton) Smith - NL MU SL KI SE
Leptospermum lanigerum (Aiton) Smith var. *pubescens* Hook.f. = *Leptospermum lanigerum*
Leptospermum myrsinoides Schldl. - NL MU SL KI SE
Leptospermum phyllicoides (Cunn. ex Schauer) Cheel = *Kunzea ericoides*
Leptospermum pubescens Lam. = *Leptospermum lanigerum*
Leptospermum roei Benth. - not in S.Aust.
Leptospermum roei sensu A.S.George (1981) = *Leptospermum fastigiatum*
Leptospermum sp. A - NL MU SL KI SE
Lhotzkya alpestris (Lindley) Druce = *Calytrix alpestris*
Lhotzkya alpestris (Lindley) Druce var. *bracteosa* Benth. = *Calytrix alpestris*
Lhotzkya genetylloides F.Muell. = *Calytrix alpestris*
Lhotzkya genetylloides F.Muell. var. *bracteosa* Benth. = *Calytrix alpestris*
Lhotzkya glaberrima F.Muell. = *Calytrix glaberrima*
Lhotzkya glaberrima F.Muell. var. *magnisepala* J.Black = *Calytrix glaberrima*
Lhotzkya smeatoniana F.Muell. = *Calytrix smeatoniana*
Melaleuca neglecta Ewart & B.Wood = *Melaleuca brevifolia*
Melaleuca acuminata F.Muell. - FR EP NL MU YP SL KI SE
Melaleuca adnata sensu Carrick & Chorney (1979) = *Melaleuca eleutherostachya*
 **Melaleuca armillaris* (Sol. ex Gaertner) Smith - SL
Melaleuca armillaris Smith var. *tenuifolia* Benth. - not in S.Aust.
Melaleuca bracteata F.Muell. - NW FR
Melaleuca brevifolia Turcz. - EP MU SL KI SE
Melaleuca corrugata J.Black ex Eardley - NW
Melaleuca curvifolia Schldl. = *Melaleuca lanceolata*
Melaleuca cuticularis Labill. - KI
Melaleuca daleana Blakely = *Melaleuca bracteata*
Melaleuca decussata R.Br. - EP YP SL KI SE
Melaleuca decussata R.Br. var. *ovoidea* J.Black = *Melaleuca decussata*
Melaleuca dissitiflora F.Muell. - NW LE FR
Melaleuca drummondii Schauer = *Melaleuca uncinata*
Melaleuca elegans Hornsch. = *Melaleuca decussata*
Melaleuca eleutherostachya F.Muell. - NU GT EP
Melaleuca ericifolia sensu Tate (1890) = *Melaleuca brevifolia*
Melaleuca fasciculiflora sensu J.Black (1952) = *Melaleuca brevifolia*
Melaleuca genistifolia Smith var. *coriacea* Ewart, L.Kerr & Derrick = *Melaleuca bracteata*
Melaleuca gibbosa Labill. - EP YP KI SE
Melaleuca glaucocalyx Gand. = *Melaleuca bracteata*
Melaleuca glomerata F.Muell. - NW LE GT FR EA
Melaleuca hakeoides F.Muell. ex Benth. = *Melaleuca glomerata*
Melaleuca halmaturorum F.Muell. ex Miq. - EP MU YP SL KI SE
Melaleuca hamata Fielding & Gardner = *Melaleuca uncinata*
Melaleuca hamulosa sensu Ising = *Melaleuca raphiophylla*
 **Melaleuca hypericifolia* Smith - ?SL
Melaleuca lanceolata Otto - NU GT FR EA EP NL MU YP SL KI SE
Melaleuca lelocarpa F.Muell. - NU GT EP
Melaleuca linariifolia Smith var. *trichostachya* (Lindley) Benth. - LE FR
Melaleuca linariifolia sensu Carrick (1979) = *Melaleuca linariifolia* var. *trichostachya*
Melaleuca linophylla sensu H.Eichler (1965) = *Melaleuca dissitiflora*
Melaleuca monticola J.Black = *Melaleuca bracteata*
Melaleuca myrtifolia Vent. = *Melaleuca squarrosa*
Melaleuca nanophylla Carrick - NW

91.306 MYRTACEAE (contd)

- Melaleuca oligantha* F.Muell. ex Miq. = *Melaleuca decussata*
Melaleuca oraria J.Black = *Melaleuca brevifolia*
Melaleuca ottonis Schauer = *Melaleuca squamea*
Melaleuca oxyphylla Carrick - EP
Melaleuca paludosa sensu Schldl. (1857) = *Callistemon sieberi*
Melaleuca parviflora Reichb. = *Melaleuca decussata*
Melaleuca parviflora sensu Tate (1890) = *Melaleuca lanceolata*
Melaleuca pauperiflora F.Muell. - NW LE NU GT FR EP NL MU YP
Melaleuca pubescens Schauer = *Melaleuca lanceolata*
Melaleuca pustulata sensu Benth. (1867) = *Melaleuca halmaturorum*
Melaleuca quadrifaria F.Muell. - NU
Melaleuca raphiophylla Schauer - EP
Melaleuca semiteres Schauer = *Melaleuca uncinata*
Melaleuca sheathiana W.Fitzg. = *Melaleuca pauperiflora*
Melaleuca squamea Labill. - SL KI SE
Melaleuca squamea Labill. var. *glabra* sensu J.Black (1926) = *Melaleuca squamea*
Melaleuca squarrosa Donn ex Smith - SE
Melaleuca tetragona Lodd. ex Otto = *Melaleuca decussata*
Melaleuca trichostachya Lindley = *Melaleuca linariifolia* var. *trichostachya*
Melaleuca trichostachya sensu Tate (1890) = *Melaleuca dissitiflora*
Melaleuca uncinata R.Br. - NW LE NU GT FR EP NL MU YP SL KI SE
Melaleuca wilsonii F.Muell. - KI SE
Metrosideros armillaris Sol. ex Gaertner = *Melaleuca armillaris*
Metrosideros hyssopifolia Cav. = *Melaleuca linariifolia* var. *trichostachya*
Metrosideros macropunctata Dum.-Cours. = *Callistemon macropunctatus* nomen dubium
Metrosideros rugulosa Willd. ex Link = *Callistemon rugulosus*
Metrosideros stricta Hort. ex Dum.-Cours. = *Melaleuca linariifolia* var. *trichostachya*
Micromyrtus ciliata (Smith)Druce - MU SE
Micromyrtus flmbrisepala J.Green - NW
Micromyrtus flaviflora (F.Muell.)F.Muell. ex J.Black - NW
Micromyrtus microphylla (Sieber ex Sprengel)Benth. = *Micromyrtus ciliata*
Micromyrtus trachycalyx (F.Muell.)C.Gardner = *Micromyrtus flaviflora*
 **Myrtus communis* L. - ?SL
Paryphantha mitchelliana Schauer = *Thryptomene calycina*
Philadelphina laniger Aiton = *Leptospermum lanigerum*
Schuermannia homoranthoides F.Muell. = *Darwinia homoranthoides*
Thryptomene auriculata F.Muell. = *Thryptomene maisonneuvei*
Thryptomene biseriata J.Green - NW
Thryptomene calycina (Lindley)Stapf - MU SE
Thryptomene ciliata (Smith)F.Muell. ex Woolls = *Micromyrtus ciliata*
Thryptomene elliotii F.Muell. - NW NU GT EP
Thryptomene ericaea F.Muell. - EP YP KI
Thryptomene flaviflora F.Muell. = *Micromyrtus flaviflora*
Thryptomene longifolia J.Green - NW
Thryptomene maisonneuvei F.Muell. - NW LE NU GT EP
Thryptomene micrantha Hook.f. - NU EP YP SL
Thryptomene miqueliana F.Muell. = *Thryptomene micrantha*
Thryptomene mitchelliana (Schauer)F.Muell. = *Thryptomene calycina*
Thryptomene plicata (F.Muell.)F.Muell. = *Micromyrtus ciliata*
Thryptomene urceolaris F.Muell. - NW
Thryptomene urceolaris sensu Jessop (1984) = *Thryptomene biseriata*
Thryptomene whiteae J.Black = *Thryptomene elliotii*
Verticordia wilhelmii F.Muell. - NU GT EP NL YP

91.320 ONAGRACEAE

- Epilobium adenocaulon* Hausskn. = *Epilobium ciliatum*
Epilobium billardieranum Ser. ssp. *billardieranum* - EP MU SL KI SE
Epilobium billardieranum Ser. ssp. *cinereum* (A.Rich.)Raven & Engelhorn -
 FR EP SL KI SE
Epilobium billardieranum Ser. ssp. *intermedium* Raven & Engelhorn -
 FR MU YP SL KI SE
 **Epilobium ciliatum* Raf. - ?MU ?YP SL
Epilobium cinereum A.Rich. = *Epilobium billardieranum* ssp. *cinereum*
Epilobium glabellum Forster f. - not in S.Aust.

91.320 ONAGRACEAE (contd)

- Epilobium glabellum* sensu J.Black (1952), partly =
Epilobium billardieranum ssp. *billardieranum*
Epilobium glabellum sensu J.Black (1952), partly =
Epilobium billardieranum ssp. \times *intermedium*
Epilobium hirtigerum Cunn. - FR NL MU SL SE
Epilobium junceum Forster f. ex Sprengel var. *hirtigerum* (Cunn.) Hook.f. =
Epilobium hirtigerum
Epilobium junceum sensu J.Black (1952), partly = *Epilobium billardieranum* ssp. *cinereum*
Epilobium junceum sensu J.Black (1952), partly = *Epilobium hirtigerum*
Epilobium pallidiflorum Sol. ex Cunn. - MU SL SE
Fuchsia macrostemma Ruiz Lopez & Pavón = *Fuchsia magellanica* var. *macrostemma*
**Fuchsia magellanica* Lam. var. *macrostemma* (Ruiz Lopez & Pavón) Munz - SL
**Gaura lindheimeri* Engelm. & A.Gray - SL
Isnardia palustris L. = *Ludwigia palustris*
Jussiaea montevidensis Sprengel = *Ludwigia peploides* ssp. *montevidensis*
Jussiaea peploides Kunth = *Ludwigia peploides* ssp. *peploides*
Jussiaea repens sensu J.Black (1952) = *Ludwigia peploides* ssp. *montevidensis*
**Ludwigia palustris* (L.) Elliot - SE
**Ludwigia peploides* (Kunth) Raven ssp. *montevidensis* (Sprengel) Raven - LE MU SL SE
Ludwigia peploides (Kunth) Raven ssp. *peploides* - not in S.Aust.
Oenothera erythrosepala Borbás = *Oenothera glazioviana*
**Oenothera acaulis* Cav. - NL SL SE
**Oenothera affinis* Cambess. - SL
Oenothera biennis sensu J.Black (1952) - identity not known
**Oenothera glazioviana* M.Micheli - SL
**Oenothera speciosa* Nutt. - ?NL ?SL
Oenothera striata Ledeb. ex Link = *Oenothera stricta*
Oenothera stricta Ledeb. ex Link - EP NL MU YP SL KI SE

91.322 HALORAGACEAE

- Glischrocaryon aureum* (Lindley) Orch. var. *angustifolium* (Nees) Orch. - NW GT EP
Glischrocaryon aureum (Lindley) Orch. var. *aureum* - not in S.Aust.
Glischrocaryon behrii (Schldl.) Orch. - EP MU YP SL KI SE
Glischrocaryon flavescens (J.L.Drumm. ex Hook.) Orch. - FR EP MU NL
Glischrocaryon roei Endl. - not in S.Aust.
Gonocarpus confertifolius (F.Muell.) Orch. var. *helmsii* Orch. - ?NU
Gonocarpus elatus (Cunn. ex Fenzl) Orch. - FR EA EP NL MU SL SE
Gonocarpus humilis Orch. - SE
Gonocarpus mezianus (Schindler) Orch. - EP NL YP SL KI SE
Gonocarpus micranthus Thunb. ssp. *micranthus* - SL KI SE
Gonocarpus tetragynus Labill. - FR EP NL MU SL KI SE
Haloragis acutangula F.Muell. forma *acutangula* - NU EP MU YP SL KI SE
Haloragis acutangula F.Muell. forma *annulata* Orch. - EP YP
Haloragis acutangula F.Muell. forma *dentata* Orch. - NU EP YP
Haloragis acutangula F.Muell. forma *inflata* Orch. - EP MU YP
Haloragis acutangula F.Muell. forma *obturbinata* Orch. - EP
Haloragis acutangula F.Muell. forma *occidentalis* Orch. =
Haloragis acutangula forma *stellata*
Haloragis acutangula F.Muell. forma *pyramidata* Orch. - NU EP
Haloragis acutangula F.Muell. forma *semiangulata* (J.Black) Orch. - NU EP NL YP
Haloragis acutangula F.Muell. forma *stellata* Orch. - NU EP
Haloragis acutangula F.Muell. forma *subacutangula* Orch. - EP YP
Haloragis acutangula F.Muell. forma *tetraglebosa* Orch. - NU EP YP
Haloragis acutangula F.Muell. forma *tetraptera* Orch. - NU EP MU YP SL KI
Haloragis acutangula F.Muell. forma *turbinata* Orch. - NU EP YP SE
Haloragis aspera Lindley - NW LE GT FR EA EP NL MU YP SL KI SE
Haloragis brownii (Hook.f.) Schindler - SL KI SE
Haloragis ceratophylla Zahlbr. ex Endl. = *Haloragis heterophylla*
Haloragis ciliata J.Black = *Haloragis acutangula* forma *tetraptera*
Haloragis confertifolia F.Muell. = *Gonocarpus confertifolius* var. *helmsii*
Haloragis coronopifolia Schindler = *Haloragis odontocarpa* forma *pterocarpa*
Haloragis digyna sensu F.Muell. (1888) = *Haloragis myriocarpa*
Haloragis digyna sensu Orch. (1975) = *Haloragis eyreana*

91.322 HALORAGACEAE (contd)

Haloragis eichleri Orch. - EP MU KI SE*Haloragis elata* Cunn. ex Fenzl = *Gonocarpus elatus**Haloragis eyreana* Orch. - EP*Haloragis glauca* Lindley forma *glauca* - not in S.Aust.*Haloragis glauca* Lindley forma *sclopetifera* (F.Muell.)Orch. - LE*Haloragis gossei* F.Muell. - NW LE NU EP*Haloragis heterophylla* Brongn. - GT MU SL SE*Haloragis heterophylla* Brongn. var. *aspera* (Lindley)Schindler = *Haloragis aspera**Haloragis heterophylla* Brongn. var. *glaucofolia* Schindler = *Haloragis aspera**Haloragis heterophylla* Brongn. var. *linearis* J.Black = *Haloragis heterophylla**Haloragis meionectes* F.Muell. = *Haloragis brownii**Haloragis meiziana* Schindler = *Gonocarpus meizianus**Haloragis micrantha* (Thunb.)R.Br. ex Sieber & Zucc. =*Gonocarpus micranthus* ssp. *micranthus**Haloragis mucronata* Benth. var. *trachycarpa* J.Black = *Haloragis myriocarpa**Haloragis mucronata* Benth. sensu Benth. (1864) = *Haloragis myriocarpa**Haloragis mucronata* sensu J.Black (1928) = *Haloragis eyreana**Haloragis myriocarpa* Orch. - SL SE*Haloragis odontocarpa* F.Muell. forma *octoforma* Orch. - NW LE*Haloragis odontocarpa* F.Muell. forma *odontocarpa* - not in S.Aust.*Haloragis odontocarpa* F.Muell. forma *pterocarpa* Orch. - LE NU MU SL*Haloragis odontocarpa* F.Muell. forma *rugosa* Orch. - NW NU*Haloragis sclopetifera* F.Muell. = *Haloragis glauca* forma *sclopetifera**Haloragis semiangulata* J.Black = *Haloragis acutangula* forma *semiangulata**Haloragis tenuis* Schindler = *Gonocarpus elatus**Haloragis tetragyna* (Labill.)Hook.f. = *Gonocarpus tetragynus**Haloragis tetragyna* (Labill.)Hook.f. var. *glabrescens* Bailey =*Haloragis glauca* forma *sclopetifera**Haloragis teucrioides* (DC.)Schldl. var. *glabrata* Sonder = *Gonocarpus meizianus**Haloragis teucrioides* (DC.)Schldl. var. *meiziana* (Schindler)J.Black = *Gonocarpus meizianus**Haloragis teucrioides* sensu J.Black (1952), partly = *Gonocarpus humilis**Haloragis teucrioides* sensu J.Black (1952), partly = *Gonocarpus meizianus**Haloragis uncatipila* Orch. - NW*Loudonia aurea* Lindley = *Glischrocaryon aureum* var. *aureum**Loudonia behrii* Schldl. = *Glischrocaryon behrii**Loudonia citrina* F.Muell. = *Glischrocaryon flavescens**Loudonia flavescens* J.L.Drumm. = *Glischrocaryon flavescens**Loudonia roei* (Endl.)Schldl. = *Glischrocaryon roei**Loudonia roei* sensu J.Black (1952), partly = *Glischrocaryon aureum* var. *angustifolium**Loudonia roei* sensu J.Black (1952), partly = *Glischrocaryon flavescens**Meionectes brownii* Hook.f. = *Haloragis brownii**Myriophyllum amphibium* Labill. - SL KI*Myriophyllum caput-medusae* Orch. - MU SL SE*Myriophyllum crispatum* Orch. - MU SL*Myriophyllum elatinoides* sensu J.Black (1952), partly = *Myriophyllum caput-medusae**Myriophyllum elatinoides* sensu J.Black (1952), partly = *Myriophyllum salsugineum**Myriophyllum glomeratum* Schindler - ?SE*Myriophyllum integrifolium* (Hook.f.)Hook.f. - EP SL KI SE*Myriophyllum muelleri* Sonder - EP SL KI SE*Myriophyllum papillosum* Orch. - MU SL*Myriophyllum pedunculatum* Hook.f. - KI*Myriophyllum propinquum* Cunn. var. *genuinum* Schindler = *Myriophyllum variifolium**Myriophyllum propinquum* sensu J.Black (1952), partly = *Myriophyllum papillosum**Myriophyllum propinquum* sensu J.Black (1952), partly = *Myriophyllum variifolium**Myriophyllum propinquum* sensu J.Black (1952), partly = *Myriophyllum crispatum**Myriophyllum salsugineum* Orch. - EP SL KI SE*Myriophyllum simulans* Orch. - MU SL KI SE*Myriophyllum variifolium* Hook.f. - SL KI SE*Myriophyllum variifolium* Hook.f. var. *microphyllum* F.Muell. ex Sonder =*Myriophyllum verrucosum**Myriophyllum verrucosum* Lindley - NW LE GT FR EA EP NL MU SL SE*Pelonastes integrifolium* Hook.f. = *Myriophyllum integrifolium*

91.337 ARALIACEAE**Hedera helix* L. ssp. *helix* - SL**91.339 UMBELLIFERAE****Ammi majus* L. - EP NL MU YP SL SE**Anethum graveolens* L. - SL*Apium ammi* Urban = *Ciclospermum leptophyllum**Apium annuum* P.Short - EP MU YP SL KI SE*Apium australe* sensu J.Black (1952), partly = *Apium annuum**Apium australe* sensu J.Black (1952), partly =*Apium prostratum* ssp. *prostratum* var. *prostratum**Apium crispum* Miller = *Petroselinum crispum**Apium filiforme* (A.Rich.)Hook. = *Apium prostratum* ssp. *prostratum* var. *filiforme***Apium graveolens* L. - FR EP MU SL ?SE*Apium leptophyllum* (Pers.)F.Muell. = *Ciclospermum leptophyllum**Apium petroselinum* L. = *Petroselinum crispum**Apium prostratum* Labill. ex Vent. ssp. *prostratum* var. *filiforme* (A.Rich.)Kirk -

FR EA EP MU YP SL KI SE

Apium prostratum Labill. ex Vent. ssp. *prostratum* var. *prostratum* -

EP NL MU YP SL SE

Apium tenuifolium Thell. = *Ciclospermum leptophyllum**Berula angustifolia* (L.)Mertens & Koch = *Berula erecta**Berula erecta* (Hudson)Coville - NL MU SL SE**Bifora testiculata* (L.)Sprengel - NL YP SL**Bupleurum semicompositum* L. - NU EP NL MU YP SL KI SE*Caldasia andicola* Lag. ex DC. = *Oreomyrrhis andicola**Caldasia eriopoda* DC. = *Oreomyrrhis eriopoda**Carum petroselinum* (L.)Benth. = *Petroselinum crispum**Carum sioides* J.Black = *Berula erecta**Caucalis nodosa* (L.)Scop. = *Torilis nodosa**Centella asiatica* sensu J.Black (1952) = *Centella cordifolia**Centella cordifolia* (Hook.f.)Nannf. - FR EP MU SL KI SE*Centella uniflora* (Colenso)Nannf. - ?SE*Cesatia ornata* Endl. = *Trachymene ornata* var. *ornata***Ciclospermum leptophyllum* (Pers.)Sprague - EP MU SL**Conium maculatum* L. - FR EA EP NL MU YP SL KI SE*Coriandrum sativum* L. - NL*Coriandrum testiculatum* L. = *Bifora testiculata**Crantzia australica* A.W.Hill ex J.Black = *Lilaeopsis polyantha**Crantzia australica* F.Muell. ex Klatt = *Lilaeopsis polyantha**Crantzia polyantha* Gand. = *Lilaeopsis polyantha**Daucus brachiatus* Sieber ex DC. = *Daucus glochidiatus***Daucus carota* L. - SL SE*Daucus glochidiatus* (Labill.)Fischer et al. -

NW LE NU GT FR EA EP NL MU YP SL KI SE

Didiscus anisocarpa (Turcz.)F.Muell. = *Trachymene anisocarpa**Didiscus benthamii* Domin = *Trachymene anisocarpa**Didiscus cyanopetalus* (F.Muell.)F.Muell. = *Trachymene cyanopetala**Didiscus glaucifolius* F.Muell. = *Trachymene glaucifolia**Didiscus glaucifolius* F.Muell. var. *macrocarpus* Domin = *Trachymene glaucifolia**Didiscus ornatus* (Endl.)Domin = *Trachymene ornata* var. *ornata**Didiscus ornatus* (Endl.)Domin var. *semilanatus* J.Black =*Trachymene ornata* var. *semilanata**Didiscus pilosus* (Smith)Domin = *Trachymene pilosa**Didiscus pilosus* Benth. = *Trachymene anisocarpa**Didiscus pusillus* (DC.)F.Muell. = *Trachymene pilosa**Dimetopia anisocarpa* Turcz. = *Trachymene anisocarpa**Dimetopia cyanopetala* F.Muell. = *Trachymene cyanopetala**Dimetopia eriocarpa* F.Muell. = *Trachymene ornata* var. *ornata**Dimetopia pusilla* DC. = *Trachymene pilosa**Dominia acroptera* (Domin)Fedde = *Uldinia ceratocarpa***Eryngium campestre* L. - MU SL*Eryngium ovium* Cunn. = *Eryngium rostratum**Eryngium plantagineum* F.Muell. - LE*Eryngium rostratum* Cav. - FR NL SL SE

91.339 UMBELLIFERAE (contd)

- Eryngium supinum* J.Black - LE
Eryngium tetracephalum Bunge = *Eryngium rostratum*
Eryngium vesiculosum Labill. - NW SL KI SE
 **Ferula communis* L. - SL
Ferula communis L. var. *nodiflora* (L.) Arcang. = *Ferula communis*
Ferula nodiflora L. = *Ferula communis*
Foeniculum officinale All. = *Foeniculum vulgare*
 **Foeniculum vulgare* Miller - NL MU SL KI SE
Hydrocotyle asiatica sensu J.Black (1952) = *Centella cordifolia*
 **Hydrocotyle bonariensis* Lam. - SL
Hydrocotyle callicarpa Bunge - FR EP NL MU YP SL KI SE
Hydrocotyle candollei F.Muell. = *Hydrocotyle laxiflora*
Hydrocotyle capillaris F.Muell. ex Klatt - EP MU YP SL KI SE
Hydrocotyle ceratocarpa Fitzg. = *Uldinia ceratocarpa*
Hydrocotyle comocarpa F.Muell. - SL KI SE
Hydrocotyle comosa F.Muell. = *Hydrocotyle comocarpa*
Hydrocotyle cordifolia Hook.f. = *Centella cordifolia*
Hydrocotyle crassiuscula Tate - SL KI
Hydrocotyle densiflora DC. = *Hydrocotyle laxiflora*
Hydrocotyle diantha DC. - KI
Hydrocotyle foveolata H.Eichler - EP NL YP SL KI SE
Hydrocotyle glochidiata Benth. = *Neosciadium glochidiatum*
Hydrocotyle hirta R.Br. ex A.Rich. - SL KI SE
Hydrocotyle laxiflora DC. - FR NL SL KI SE
Hydrocotyle medicaginoides Turcz. - EP YP SL SE
Hydrocotyle mercurialis (J.Black) Hiroe = *Uldinia ceratocarpa*
Hydrocotyle muscosa R.Br. ex A.Rich. - SL KI SE
Hydrocotyle pillifera Turcz. var. *glabrata* Benth. - EP MU YP SL
Hydrocotyle plebeia R.Br. ex Sprengel = *Hydrocotyle plebeya*
Hydrocotyle plebeya R.Br. ex A.Rich. - SL SE
Hydrocotyle pterocarpa F.Muell. - SL SE
Hydrocotyle rugulosa Turcz. - EP MU YP
Hydrocotyle trachycarpa F.Muell. - NW GT FR EA EP
Hydrocotyle tripartita R.Br. ex A.Rich. - KI SE
Hydrocotyle tripartita R.Br. ex A.Rich. var. *muscosa* (R.Br. ex A.Rich.) Benth. =
Hydrocotyle muscosa
Hydrocotyle uniflora = *Centella uniflora*
Hydrocotyle verticillata Thunb. - LE FR MU SL SE
Hydrocotyle vulgaris sensu J.Black (1952) = *Hydrocotyle verticillata*
Lilaeopsis australica A.W.Hill ex J.Black = *Lilaeopsis polyantha*
Lilaeopsis polyantha (Gand.) H.Eichler - EP MU SL KI SE
Maidenia acroptera Domin = *Uldinia ceratocarpa*
Maidenia ceratocarpa (W.Fitzg.) Domin = *Uldinia ceratocarpa*
Neosciadium glochidiatum (Benth.) Domin - ?NU
 **Oenanthe pimpinelloides* L. - SL
Oreomyrrhis andicola (Kunth) Hook.f. - not in S.Aust.
Oreomyrrhis andicola sensu J.Black (1952), partly = *Oreomyrrhis eriopoda*
Oreomyrrhis eriopoda (DC.) Hook.f. - SL SE
 **Pastinaca sativa* L. ssp. *sativa* - SL SE
 **Petroselinum crispum* (Miller) A.W.Hill - YP SL KI
Petroselinum filiforme A.Rich. = *Apium prostratum* ssp. *prostratum* var. *filiforme*
Petroselinum sativum Hoffm. = *Petroselinum crispum*
Pimpinella leptophylla Pers. = *Ciclospermum leptophyllum*
Platysace heterophylla (Benth.) Norman var. *heterophylla* - EP YP SL KI SE
Platysace heterophylla (Benth.) Norman var. *tepperi* (J.Black) H.Eichler - KI
Scandix glochidiata Labill. = *Daucus glochidiatus*
 **Scandix pecten-veneris* L. ssp. *pecten-veneris* - SL
Sieberta heterophylla Benth. = *Platysace heterophylla* var. *heterophylla*
Sison ammi sensu Jacq. = *Ciclospermum leptophyllum*
Sium angustifolium L. = *Berula erecta*
Sium erectum Hudson = *Berula erecta*
Sium latifolium L. var. *univittatum* J.Black = *Berula erecta*
Sium latifolium sensu Benth. (1867), partly = *Berula erecta*
Sium latijugum sensu J.Black (1926) = *Berula erecta*

91.339 UMBELLIFERAE (contd)

- **Tordylium apulum* L. - SL
Tordylium nodosum L. = *Torilis nodosa*
 **Torilis nodosa* (L.) Gaertner - SL KI SE
Trachymene anisocarpa (Turcz.) B.L. Burtt - NL MU
Trachymene australis Benth. = *Trachymene anisocarpa*
Trachymene cyanopetala (F. Muell.) Benth. - GT EP MU YP SL SE
Trachymene eriocarpa (F. Muell.) Benth. = *Trachymene ornata* var. *ornata*
Trachymene glaucifolia (F. Muell.) Benth. - NW LE NU GT FR EA EP
Trachymene heterophylla (Benth.) Tate = *Platysace heterophylla* var. *heterophylla*
Trachymene heterophylla (Benth.) Tate var. *tepperi* J. Black =
Platysace heterophylla var. *tepperi*
Trachymene ornata (Endl.) Druce var. *ornata* - GT FR EP
Trachymene ornata (Endl.) Druce var. *semilanata* (J. Black) H. Eichler - LE
Trachymene pilosa Smith - GT FR EP NL MU YP SL KI SE
Uldinia ceratocarpa (Fitzg.) N. Burb. - NW NU GT EP
Uldinia mercurialis J. Black = *Uldinia ceratocarpa*
Xanthosia dissecta Hook.f. var. *dissecta* - not in S. Aust.
Xanthosia dissecta Hook.f. var. *floribunda* Benth. - EP SL KI SE
Xanthosia leiophylla F. Muell. ex Klatt = *Xanthosia dissecta* var. *floribunda*
Xanthosia pusilla Bunge - EP SL KI SE
Xanthosia tasmanica Domin - SL KI

91.344 ERICACEAE

- **Arbutus unedo* L. - SL
 **Erica arborea* L. - EP SL
 **Erica baccans* L. - SL
 **Erica lusitanica* Rudolphi - SL
Erica stricta sensu J. Black (1952) = *Erica arborea*

91.346 EPACRIDACEAE

- Acrotriche affinis* DC. - NL MU YP SL KI SE
Acrotriche cordata (Labill.) R. Br. - EP MU YP SL KI SE
Acrotriche depressa R. Br. - NL MU SL KI SE
Acrotriche fasciculiflora (Regel) Benth. - SL KI
Acrotriche halmaturina B. Paterson - KI
Acrotriche ovalifolia R. Br. = *Acrotriche cordata*
Acrotriche patula R. Br. - NU EP NL MU YP SL KI
Acrotriche patula sensu Hook.f. (1857) = *Acrotriche affinis*
Acrotriche serrulata (Labill.) R. Br. - MU SL SE KI
Astroloma conostephioides (Sonder) F. Muell. ex Benth. - EP NL MU ? YP SL KI SE
Astroloma denticulatum R. Br. = *Astroloma humifusum*
Astroloma humifusum (Cav.) R. Br. - FR EP MU YP SL KI SE
Astroloma humifusum (Cav.) R. Br. var. *denticulatum* (R. Br.) J. Black =
Astroloma humifusum
Brachyloma ciliatum (R. Br.) Benth. - SL ? KI SE
Brachyloma daphnoides (Smith) Benth. var. *daphnoides* - MU SE
Brachyloma ericoides (Schldl.) Sonder ssp. *bicolor* Bates - KI
Brachyloma ericoides (Schldl.) Sonder ssp. *ericoides* - NL MU SL SE
Conostephium halmaturinum J. Black = *Leucopogon woodsii*
Epacris impressa Labill. - FR SL KI SE
Epacris lanuginosa Labill. - not in S. Aust.
Epacris microphylla R. Br. - ? not in S. Aust.
Epacris obtusifolia Smith - ? not in S. Aust.
Froebelia fasciculiflora Regel = *Acrotriche fasciculiflora*
Leucopogon australis sensu J. Black (1952) = *Leucopogon lanceolatus*
Leucopogon clevelandii Cheel - FR YP SL KI SE
Leucopogon collinus sensu J. Black (1952) = *Leucopogon glacialis*
Leucopogon aff. collinus (Labill.) R. Br. - MU SE
Leucopogon concurvus F. Muell. - SL KI
Leucopogon cordifolius Lindley - GT EP NL MU YP SL SE
Leucopogon costatus (F. Muell.) F. Muell. ex J. Black - EP MU SL KI SE
Leucopogon ericoides (Smith) R. Br. - SE
Leucopogon exarrhenus F. Muell. = *Styphelia exarrhena*
Leucopogon glacialis Lindley - EP SL SE

91.346 EPACRIDACEAE (contd)

- Leucopogon hirsutus* Sonder - KI SL
Leucopogon hirtellus F.Muell. ex Benth. = *Styphelia exarrhena*
Leucopogon hirtellus F.Muell. ex Benth. var. *glabrifolius* J.Black = *Styphelia exarrhena*
Leucopogon intermedius Cheel = *Styphelia exarrhena*
Leucopogon lanceolatus (Smith)R.Br. var. *lanceolatus* - ?YP SL SE
Leucopogon parviflorus (Andrews)Lindley - EP YP SL KI SE
Leucopogon revolutus R.Br. - EP
Leucopogon richi (Labill.)R.Br. = *Leucopogon parviflorus*
Leucopogon rotundifolius Sonder = *Leucopogon cordifolius*
Leucopogon rufus Lindley - EP MU SL KI SE
Leucopogon virgatus (Labill.)R.Br. - MU YP SL ?KI SE
Leucopogon woodsii F.Muell. - EP MU YP SL KI SE
Lissanthe ciliata R.Br. = *Brachyloma ciliatum*
Lissanthe strigosa (Smith)R.Br. - FR EP NL MU SL KI SE
Lobopogon ericoides Schldl. = *Brachyloma ericoides* ssp. *ericoides*
Monotoca scoparia (Smith)R.Br. - SE
Pentataphrus behrii Schldl. = *Astroloma conostephioides*
Sprengelia incarnata Smith - SL KI SE
Stenanthera conostephioides Sonder = *Astroloma conostephioides*
Styphelia adscendens R.Br. - SE
Styphelia australis (R.Br.)F.Muell. = *Leucopogon australis*
Styphelia behrii (Schldl.)Sleumer = *Astroloma conostephioides*
Styphelia ciliata (R.Br.)F.Muell. = *Brachyloma ciliatum*
Styphelia concurva F.Muell. = *Leucopogon concurvus*
Styphelia cordata Labill. = *Acrotriche cordata*
Styphelia cordifolia (Lindley)F.Muell. = *Leucopogon cordifolius*
Styphelia costata F.Muell. = *Leucopogon costatus*
Styphelia daphnoides Smith = *Brachyloma daphnoides*
Styphelia depressa (R.Br.)Sprengel = *Acrotriche depressa*
Styphelia ericoides Smith = *Leucopogon ericoides*
Styphelia exarrhena (F.Muell.)F.Muell. - EP MU SL KI SE
Styphelia exarrhena (F.Muell.)F.Muell. var. *hirtella* (F.Muell. ex Benth.)J.Black =
Styphelia exarrhena
Styphelia fasciculiflora (Regel)F.Muell. = *Acrotriche fasciculiflora*
Styphelia hirsuta (Sonder)F.Muell. = *Leucopogon hirsutus*
Styphelia hirtella F.Muell. = *Styphelia exarrhena*
Styphelia humifusa (Cav.)Pers. = *Astroloma humifusum*
Styphelia humifusa (Cav.)Pers. var. *denticulatum* (R.Br.)J.Black = *Astroloma humifusum*
Styphelia lanceolata Smith = *Leucopogon lanceolatus* var. *lanceolatus*
Styphelia ovalifolia (R.Br.)Sprengel = *Acrotriche cordata*
Styphelia parviflora Andrews = *Leucopogon parviflorus*
Styphelia patula (R.Br.)Sprengel = *Acrotriche patula*
Styphelia pusilliflora F.Muell. = *Styphelia exarrhena*
Styphelia richi Labill. = *Leucopogon parviflorus*
Styphelia rotundifolia (Sonder)F.Muell. = *Leucopogon cordifolius*
Styphelia rufa (Lindley)F.Muell. = *Leucopogon rufus*
Styphelia scoparia Smith = *Monotoca scoparia*
Styphelia serrulata Labill. = *Acrotriche serrulata*
Styphelia sonderi F.Muell. = *Astroloma conostephioides*
Styphelia strigosa Smith = *Lissanthe strigosa*
Styphelia virgata Labill. = *Leucopogon virgatus*
Styphelia woodsii (F.Muell.)Tate = *Leucopogon woodsii*
Ventenatia humifusa Cav. = *Astroloma humifusum*

91.349 PRIMULACEAE

- **Anagallis arvensis* L. - LE NU GT FR EA EP NL MU YP SL KI SE
Anagallis arvensis L. ssp. *foemina* (Miller)Schinz & Thell. = *Anagallis foemina*
Anagallis arvensis L. var. *caerulea* Gouan = *Anagallis arvensis*
Anagallis coerulea Schreber = *Anagallis foemina*
Anagallis femina sensu J.Black (1952) = *Anagallis arvensis*
Anagallis foemina Miller - not in S.Aust.
 **Anagallis minima* (L.)E.H.Krause - ?EA SL SE
 **Asterolinon linum-stellatum* (L.)Duby - MU YP SE
Centunculus minimus L. = *Anagallis minima*

91.349 PRIMULACEAE (contd)*Lysimachia linum-stellatum* L. = *Asterolinon linum-stellatum**Samolus eremaeus* S.W.L.Jacobs - NW*Samolus repens* (Forster & Forster f.)Pers. - LE NU FR EA EP NL MU YP SL KI SE*Samolus valerandi* sensu J.Black (1952) = *Samolus eremaeus**Sheffieldia repens* Forster & Forster f. = *Samolus repens***91.352 LIMONIACEAE****Limonium binervosum* (G.E.Smith)Salmon - FR NL MU SL KI SE**Limonium companyonis* (Gren. & Billot)Kuntze - EP NL MU YP SL KI SE**Limonium hyblaeum* Brullo - EP MU YP SL SE**Limonium lobatum* (L.f.)Kuntze - FR EA EP NL MU YP SL KI SE**Limonium myrianthum* (Schrenk)Kuntze - FR EP MU YP*Limonium occidentale* (Lloyd)Kuntze = *Limonium binervosum**Limonium psilocladon* (Boiss.)Kuntze - not in S.Aust.*Limonium psilocladon* sensu J.Black (1952) = *Limonium companyonis***Limonium sinuatum* (L.)Miller - FR EP MU YP SL SE*Limonium* sp. - SL*Limonium* sp. = *Limonium hyblaeum**Limonium thouinii* (Viv.)Kuntze = *Limonium lobatum**Statice binervosa* G.E.Smith = *Limonium binervosum**Statice companyonis* Gren. & Billot = *Limonium companyonis**Statice lobata* L.f. = *Limonium lobatum**Statice myriantha* Schrenk = *Limonium myrianthum**Statice occidentalis* Ja.Lloyd = *Limonium binervosum**Statice sinuata* L. = *Limonium sinuatum**Statice thouinii* Viv. = *Limonium lobatum***91.361 OLEACEAE***Fraxinus angustifolia* Vahl = *Fraxinus rotundifolia* ssp. *rotundifolia**Fraxinus oxycarpa* sensu J.Black (1975) = *Fraxinus rotundifolia* ssp. *rotundifolia***Fraxinus rotundifolia* Miller ssp. *rotundifolia* - FR NL SL*Jasminum didymum* Forster.f. ssp. *lineare* (R.Br.)P.Green - NW GT FR EA EP NL MU*Jasminum lineare* R.Br. = *Jasminum didymum* ssp. *lineare***Ligustrum vulgare* L. - NL SL SE*Olea africana* Miller = *Olea europaea* ssp. *africana**Olea chrysophylla* Lam. = *Olea europaea* ssp. *africana**Olea europaea* L. ssp. *africana* (Miller)P.Green - ?SL**Olea europaea* L. ssp. *europaea* - FR EP NL MU YP SL KI SE**Syringa vulgaris* L. - ?SL**91.362 LOGANIACEAE****Buddleja davidii* Franchet - SL SE*Buddleja davidii* sensu Jessop (1984) = *Buddleja madagascariensis***Buddleja madagascariensis* Lam. - SL ?SE*Exacum vaginae* Labill. = *Logania vaginalis**Logania crassifolia* R.Br. - EP YP SL KI*Logania crassifolia* R.Br. var. *minor* J.Black = *Logania* sp. A*Logania insularis* J.Black - KI*Logania latifolia* R.Br. = *Logania vaginalis**Logania linifolia* Schldl. - MU SL SE*Logania longifolia* R.Br. = *Logania vaginalis**Logania longifolia* R.Br. var. *subsessilis* Benth. = *Logania recurva**Logania nuda* F.Muell. - NU GT EP MU SE*Logania ovata* R.Br. - EP YP KI SE*Logania recurva* J.Black - NL SL ?KI*Logania* sp. A - EP YP SE*Logania* sp. B - FR EP NL SL KI SE*Logania vaginalis* (Labill.)F.Muell. - not in S.Aust.*Logania vaginalis* sensu J.Black (1957) = *Logania* sp.*Mitrasacme distylis* F.Muell. - MU SL KI SE*Mitrasacme paradoxa* R.Br. - FR EP NL MU YP SL KI SE*Mitrasacme pilosa* Labill. - SE

91.367 GENTIANACEAE

- **Blackstonia perfoliata* (L.)Hudson - SE
- Centaurium australe* (R.Br.)Druce = *Centaurium spicatum*
- **Centaurium erythraea* Rafn - FR EP NL SL
- Centaurium littorale* (Turner)Gilmour - not in S.Aust.
- **Centaurium maritimum* (L.)Fritsch - SL
- Centaurium minus* sensu H.Eichler (1965) = *Centaurium erythraea*
- Centaurium pulchellum* (Sw.)Druce - not in S.Aust.
- Centaurium pulchellum* sensu H.Eichler (1965) = *Centaurium tenuiflorum*
- **Centaurium spicatum* (L.)Fritsch - LE NU GT FR EA EP NL MU YP SL KI SE
- **Centaurium tenuiflorum* (Hoffsgg. & Link)Fritsch - LE FR EP NL MU YP SL KI SE
- Chironia littoralis* Turner = *Centaurium littorale*
- Chlora perfoliata* (L.)L. = *Blackstonia perfoliata*
- **Cicendia filiformis* (L.)Delarbre - MU SL SE
- **Cicendia quadrangularis* (Domb. ex Lam.)Griseb. - SL SE
- Erythraea australis* R.Br. = *Centaurium spicatum*
- Erythraea centaurium* sensu J.Black (1957) = *Centaurium erythraea*
- Erythraea maritima* (L.)Pers. = *Centaurium maritimum*
- Erythraea spicata* (L.)Pers. = *Centaurium spicatum*
- Erythraea tenuiflora* Hoffsgg. & Link = *Centaurium tenuiflorum*
- Exacum ovatum* Labill. = *Sebaea ovata*
- Gentiana diemensis* Griseb. = *Gentianella diemensis*
- Gentiana filiformis* L. = *Cicendia filiformis*
- Gentiana maritima* L. = *Centaurium maritimum*
- Gentiana perfoliata* L. = *Blackstonia perfoliata*
- Gentiana pleurogynoides* Griseb. = *Gentianella diemensis*
- Gentiana pulchella* Sw. = *Centaurium pulchellum*
- Gentiana quadrangularis* Domb. ex Lam. = *Cicendia quadrangularis*
- Gentiana spicata* L. = *Centaurium spicatum*
- Gentianella diemensis* (Griseb.)J.H.Willis - SE
- Microcala filiformis* (L.)Hoffsgg. & Link = *Cicendia filiformis*
- Microcala quadrangularis* (Domb. ex Lam.)A.DC. = *Cicendia quadrangularis*
- Sebaea albidiflora* F.Muell. - EP YP SE
- Sebaea ovata* (Labill.)R.Br. - FR EP NL MU YP SL KI SE

91.368 MENYANTHACEAE

- Limnanthemum crenatum* F.Muell. = *Nymphoides crenata*
- Limnanthemum geminatum* (R.Br.)Griseb. = *Nymphoides geminata*
- Limnanthemum stygium* J.Black = *Villarsia reniformis*
- Nymphoides crenata* (F.Muell.)Kuntze - LE MU
- Nymphoides geminata* (R.Br.)Kuntze - KI
- Nymphoides stygia* (J.Black)H.Eichler = *Villarsia reniformis*
- Villarsia exaltata* sensu J.Black (1952) = *Villarsia reniformis*
- Villarsia geminata* R.Br. = *Nymphoides geminata*
- Villarsia parnassiiifolia* sensu J.Black (1952) = *Villarsia umbricola* var. *umbricola*
- Villarsia reniformis* R.Br. - SL KI SE
- Villarsia umbricola* H.Aston var. *beagleholei* H.Aston - SE
- Villarsia umbricola* H.Aston var. *umbricola* - NL SL KI SE

91.369 APOCYNACEAE

- Alyxia buxifolia* R.Br. - NU GT FR EP NL MU YP SL KI SE
- Carissa lanceolata* R.Br. - LE
- **Vinca major* L. - NL MU YP SL KI SE

91.371 ASCLEPIADACEAE

- Araujia hortorum* Fourn. - SL
- Araujia sericofera* Brot. = *Araujia hortorum*
- Asclepias arborescens* L. = *Asclepias rotundifolia*
- **Asclepias curassavica* L. - EP
- **Asclepias fruticosa* L. - EP MU SL SE
- **Asclepias physocarpa* (E.Meyer)Schltr. - SL SE
- Asclepias procera* Willd. = *Calotropis procera*
- **Asclepias rotundifolia* Miller - NL MU YP SL SE
- **Calotropis procera* (Willd.)R.Br. ex Aiton - LE
- Cynanchum floribundum* R.Br. - LE NU FR

91.371 ASCLEPIADACEAE (contd)

- Daemia kempeana* (F.Muell.) F.Muell. = *Rhyncharrhena linearis*
Gomphocarpus arborescens (L.) R.Br. = *Asclepias rotundifolia*
Gomphocarpus fruticosus (L.) R.Br. = *Asclepias fruticosa*
Gomphocarpus physocarpus E.Meyer = *Asclepias physocarpa*
Leichardtia australis R.Br. - NW LE NU GT FR EA EP MU
Marsdenia australis (R.Br.) Druce = *Leichardtia australis*
Marsdenia leichhardtiana F.Muell. = *Leichardtia australis*
Orbea variegata (L.) Haw. = *Stapelia variegata*
Pentstemon atropurpurea (F.Muell.) Benth. = *Rhyncharrhena linearis*
Pentstemon kempeana F.Muell. = *Rhyncharrhena linearis*
Pentstemon linearis Decne. = *Rhyncharrhena linearis*
Rhyncharrhena atropurpurea F.Muell. = *Rhyncharrhena linearis*
Rhyncharrhena linearis (Decne.) K.L.Wilson - NW LE NU GT EP
Sarcostemma australe R.Br. - NW LE GT FR EA EP YP MU
 **Stapelia variegata* L. - EP

91.373 RUBIACEAE

- Asperula conferta* Hook.f. - FR EA EP NL MU YP SL SE
Asperula euryphylla Airy Shaw & Turrill var. *tetraphylla* Airy Shaw & Turrill - KI
Asperula gemella Airy Shaw & Turrill - LE MU ?SL SE
Asperula geminifolia F.Muell. (1866) = *Asperula gemella*
Asperula gunnii Hook.f. - SE
Asperula gunnii sensu J.Black (1929) = *Asperula euryphylla* var. *tetraphylla*
Asperula lissocarpa Airy Shaw & Turrill = *Asperula syrticola*
Asperula oligantha F.Muell. = *Asperula conferta*
Asperula pusilla Hook.f. - KI
Asperula scoparia Hook.f. var. *scoparia* - not in S.Aust.
Asperula scoparia sensu J.Black (1957) = *Asperula conferta*
Asperula subsimplex Hook.f. - SE
Asperula syrticola (Miq.) Toelken - EP NL
Canthium attenuatum R.Br. ex Benth. - NW
Canthium latifolium F.Muell. ex Benth. - NW LE
Canthium lineare E.Pritzl - NW
 **Coprosma repens* A.Rich. - EP SL KI SE
Dentella pulvinata Airy Shaw - LE
Dentella pulvinata Airy Shaw var. *repanda* Airy Shaw = *Dentella pulvinata*
Dentella repens sensu J.Black (1929) = *Dentella pulvinata*
Diodia reptans F.Muell. = *Nertera reptans*
 **Galium aparine* L. - SL SE
Galium australe DC. - ?KI SE
Galium australe sensu J.Black (1929), partly = *Galium curvihirtum*
Galium axiflorum F.Muell. ex Miq. = *Galium gaudichaudii*
Galium binifolium Wakef. - FR ?YP
Galium ciliare sensu J.Black (1929) = *Galium compactum*
Galium compactum Ehrend. & McGillivray - MU SL KI SE
Galium curvihirtum Ehrend. & McGillivray - SE
 **Galium divaricatum* Lam. - NL SL KI SE
Galium gaudichaudii DC. - GT FR EA EP NL MU YP SL SE
Galium gaudichaudii DC. var. *muriculatum* Benth. = *Galium migrans*
Galium gaudichaudii sensu J.Black (1957), partly = *Galium compactum*
Galium geminifolium F.Muell. = *Asperula gemella*
Galium ibicinum Boiss. & Hausskn. ex Boiss. = *Galium spurium* ssp. *ibicinum*
Galium migrans Ehrend. & McGillivray - NW NU FR EA EP NL MU YP SL KI SE
 **Galium murale* (L.) All. - FR EP NL YP SL KI SE
Galium parisiense L. var. *australe* Ewart & Jean White = *Galium divaricatum*
Galium propinquum Cunn. - SL
 **Galium spurium* L. ssp. *ibicinum* (Boiss. & Hausskn. ex Boiss.) Ehrend. -
 GT FR EA EP NL MU YP SE
Galium tenerum Schleicher = *Galium spurium* ssp. *ibicinum*
Galium tricornutum Stokes = *Galium tricornutum*
 **Galium tricornutum* Dandy - EA NL YP SL
Galium umbrosum Forster f. ex Hook.f. = *Galium propinquum*
Galium umbrosum Forster f. ex Hook.f. var. *muriculatum* (Benth.) Ewart & Rees =
Galium migrans

91.373 RUBIACEAE (contd)

- Gomozia granadensis* Mutis ex L.f. = *Nertera granadensis*
Hedyotis elatinoides Benth. = *Synaptantha tillaeacea*
Hedyotis tillaeacea F.Muell. = *Synaptantha tillaeacea*
Nertera depressa Banks & Sol. ex Gaertner = *Nertera granadensis*
Nertera granadensis (L.f.)Druce - SE
Nertera reptans (F.Muell.)Benth. - SE
Oldenlandia corymbosa L. - not in S.Aust.
Oldenlandia tillaeacea (F.Muell.)F.Muell. = *Synaptantha tillaeacea*
Opercularia ovata Hook.f. - MU SL KI SE
Opercularia scabrida Schidl. - EP NL MU SL KI SE
Opercularia turpis F.Muell. ex Miq. - FR EP NL MU YP SL KI SE
Opercularia umbellata Gaertner = *Pomax umbellata*
Opercularia varia Hook.f. - SL KI SE
Opercularia varia Hook.f. var. *rigidior* Benth. = *Opercularia turpis*
Electronia latifolia (Benth.)J.Black = *Canthium latifolium*
Electronia linearis (E.Pritzl)J.Black = *Canthium lineare*
Pomax glabra DC. = *Pomax umbellata*
Pomax hirta DC. = *Pomax umbellata*
Pomax umbellata (Gaertner)Sol. ex A.Rich. - NW LE NU GT FR EA EP NL
Rubia syrticola Miq. = *Asperula syrticola*
 **Sherardia arvensis* L. - EP NL MU YP SL KI SE
Sherardia muralis L. = *Galium murale*
Synaptantha tillaeacea (F.Muell.)Hook.f. - NW LE GT FR EA

91.374 POLEMONIACEAE

- Gilia squarrosa* (Eschsch.)Hook. & Arn. = *Navarretia squarrosa*
 **Gilia tricolor* Benth. - SL
Hoitzia squarrosa Eschsch. = *Navarretia squarrosa*
 **Navarretia squarrosa* (Eschsch.)Hook. & Arn. - SL ?SE

91.377 CONVULVULACEAE

- Bonamia rosea* (F.Muell.)Hallier f. - NW
Breweria rosea F.Muell. = *Bonamia rosea*
Calystegia sepium (L.)R.Br. - MU SL KI SE
Convolvulus alsinoides L. = *Evolvulus alsinoides*
 **Convolvulus arvensis* L. - FR EP MU YP SL SE
Convolvulus cairicus L. = *Ipomoea cairica*
Convolvulus dissectus Jacq. = *Merremia dissecta*
Convolvulus erubescens Sims - NW LE NU GT FR EA EP NL MU YP SL KI SE
Convolvulus eyereanus R.W.Johnson - LE GT FR EA EP MU YP
Convolvulus indicus Burman = *Ipomoea indica*
Convolvulus microsepalus R.W.Johnson - LE NU FR EA
Convolvulus remotus R.Br. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Convolvulus sepium L. = *Calystegia sepium*
Cressa australis R.Br. = *Cressa cretica*
Cressa cretica L. - LE GT FR EA EP NL MU YP SL SE
Cuscuta australis R.Br. - LE FR EA
 **Cuscuta campestris* Yuncker - MU SL SE
 **Cuscuta epithymum* (L.)L. - MU SL
 **Cuscuta planiflora* Ten. - SE
Cuscuta tasmanica Engelm. - SE
Cuscuta victoriana Yuncker - LE EA ?MU
Dichondra repens Forster & Forster f. - FR EP NL MU YP SL KI SE
Evolvulus alsinoides (L.)L. var. *decumbens* (R.Br.)Ooststr. - NW FR
Evolvulus alsinoides L. var. *villosicalyx* Ooststr. - NW LE FR
Evolvulus decumbens R.Br. = *Evolvulus alsinoides* var. *decumbens*
Ipomoea acuminata (Vahl)Roemer & Schultes = *Ipomoea indica*
 **Ipomoea cairica* (L.)Sweet - ?EP
 **Ipomoea carnea* Jacq. - LE
Ipomoea congesta R.Br. = *Ipomoea indica*
Ipomoea diamantinensis J.Black - LE
Ipomoea heterophylla R.Br. = *Ipomoea polymorpha*
 **Ipomoea indica* (Burman)Merr. - MU SL
Ipomoea learsii Paxton = *Ipomoea indica*

91.377 CONVOLVULACEAE (contd)

- Ipomoea lonchophylla* J.Black - LE
Ipomoea muelleri Benth. - LE
 **Ipomoea pandurata* (L.)G.F.W.Meyer - MU SL
Ipomoea polymorpha Roemer & Schultes - LE FR
Ipomoea racemigera F.Muell. & Tate - LE
Merremia dissecta (Jacq.)Hallier f. - MU
Wilsonia backhousei Hook.f. - NU EP NL YP SL KI SE
Wilsonia humilis R.Br. var. *humilis* - NU EP YP SL KI SE
Wilsonia rotundifolia Hook. - EP NL MU YP SL KI SE

91.380 HYDROPHYLLACEAE

- **Phacelia tanacetifolia* Benth. - SL KI
 **Wigandia carascana* Kunth - SL

91.381 BORAGINACEAE

- **Amsinckia calycina* (Moris)Chater - EP NL MU SL SE
Amsinckia hispida (Ruiz Lopez & Pavón)I.M.Johnston = *Amsinckia calycina*
 **Amsinckia lycopoides* (Lehm.)Lehm. - EP MU ?SL SE
Anchusa arvensis (L.)Bieb. ssp. *arvensis* - MU SE
 **Anchusa capensis* Thunb. - EP SL SE
 **Borago officinalis* L. - MU SE
 **Buglossoides arvensis* (L.)I.M.Johnston - LE NU FR EA EP NL MU YP SL KI SE
Cochranea anchusaefolia (Poiret)Gürke = *Heliotropium amplexicaule*
Coldenia procumbens L. - not in S.Aust.
Cynoglossospermum concavum (F.Muell.)Kuntze = *Omphalolappula concava*
Cynoglossum australe R.Br. - NW LE FR EP YP SL KI SE
Cynoglossum australe R.Br. var. *drummondii* (Benth.)Brand = *Cynoglossum australe*
Cynoglossum drummondii Benth. = *Cynoglossum australe*
Cynoglossum latifolium R.Br. - not in S.Aust.
Cynoglossum suaveolens R.Br. - FR EP NL MU YP SL SE
Echinosperrum concavum F.Muell. = *Omphalolappula concava*
 **Echium italicum* L. - MU YP SL SE
Echium lycopsis L. = *Echium plantagineum*
 **Echium plantagineum* L. - NW LE NU GT FR EA EP NL MU YP SL SE
 **Echium simplex* DC. - SE
 **Echium vulgare* L. - EA NL SE
Embadium johnstonii Ising - LE
Embadium stagnense J.Black - GT
Embadium uncinatum Ising - FR EP
Eritrichium australasicum Benth., partly = *Plagiobothrys elachanthus*
Halgania andromedifolia Behr. & F.Muell. - GT EP NL MU YP SL
Halgania cyanea Lindley - NW LE NU GT FR EA EP NL MU YP SL SE
Halgania erecta Ewart & Rees - NW NL
Halgania lavandulacea Endl., partly = *Halgania andromedifolia*
 **Heliotropium amplexicaule* M.Vahl - GT FR EP MU SL SE
Heliotropium anchusaefolium Poiret = *Heliotropium amplexicaule*
Heliotropium asperrimum R.Br. - NW LE FR EP NL MU SE
 **Heliotropium curassavicum* L. - LE FR EA EP NL MU YP SL
Heliotropium elachanthum F.Muell. = *Plagiobothrys elachanthus*
 **Heliotropium europaeum* L. - LE NU FR EA EP NL MU YP SL KI SE
Heliotropium fasciculatum R.Br. - not in S.Aust.
Heliotropium flaginoides Benth. - LE
Heliotropium filaginoides Benth. var. *heteranthum* F.Muell. = *Heliotropium heteranthum*
Heliotropium gossei (Benth.)Stapf - ?LE
Heliotropium heteranthum (F.Muell.)Ewart & O.B.Davies - not in S.Aust.
Heliotropium ovalifolium Forsskal - LE FR
 **Heliotropium supinum* L. - LE GT EA EP NL MU SL SE
Heliotropium tenuifolium R.Br. - LE FR
Heliotropium undulatum M.Vahl - LE
Lappula concava (F.Muell.)F.Muell. = *Omphalolappula concava*
Lithospermum apulum (L.)M.Vahl = *Neatostema apulum*
Lithospermum arvense L. = *Buglossoides arvense*
Lithospermum calycinum Moris = *Amsinckia calycina*

91.381 BORAGINACEAE (contd)

- Lycopsis arvensis* L. = *Anchusa arvensis*
Maccويا plurisepalea F.Muell. = *Plagiobothrys plurisepaleus*
Myosotis apula L. = *Neatostema apulum*
Myosotis australis R.Br. - GT EP NL YP SL KI SE
Myosotis discolor Pers. ssp. *discolor* - SL SE
 **Myosotis sylvatica* Hoffm. - SL SE
 **Neatostema apulum* (L.)I.M.Johnston - EP MU NL YP SL SE
Notonierium gossei Benth. = *Heliotropium tenuifolium*
Omphalolappula concava (F.Muell.)Brand - NW LE NU GT FR EA EP NL MU SL
Plagiobothrys elachanthus (F.Muell.)I.M.Johnston - EP NL
Plagiobothrys orthostatus J.Black - SE
Plagiobothrys plurisepaleus (F.Muell.)I.M.Johnston - NW LE GT FR EA EP NL MU SE
Pollichia zeylanica (Burman f.)F.Muell. = *Trichodesma zeylanicum*
Rhytispermum apulum (L.)Reichb. = *Neatostema apulum*
Rochelia maccويا F.Muell. ex Benth. = *Plagiobothrys plurisepaleus*
Rochelia plurisepalea (F.Muell.)Druce = *Plagiobothrys plurisepaleus*
Tournefortia heliotropioides Hook. = *Heliotropium amplexicaule*
Trichodesma sericeum Lindley = *Trichodesma zeylanicum*
Trichodesma zeylanicum (Burman f.)R.Br. - NW LE GT FR EA EP MU
Trichodesma zeylanicum (Burman f.)R.Br. var. *latiseipaleum* F.Muell. =
 Trichodesma zeylanicum
Trichodesma zeylanicum (Burman f.)R.Br. var. *sericeum* (Lindley)Benth. =
 Trichodesma zeylanicum

91.385 VERBENACEAE

- Camara vulgaris* Benth. = *Lantana camara*
Glandularia tenuisecta (Briq.)Small = *Verbena tenuisecta*
 **Lantana camara* L. - SL
Lantana scabrida Sol. = *Lantana camara*
Lippia nodiflora (L.)Michaux = *Phyla nodiflora*
 **Phyla nodiflora* (L.)Greene - MU YP SL
 **Verbena bonariensis* L. - SL
Verbena dissecta Morong = *Verbena tenuisecta*
Verbena erinoides Lam. = *Verbena tenuisecta*
Verbena nodiflora L. = *Phyla nodiflora*
 **Verbena officinalis* L. - NW LE FR EA MU SL SE
Verbena quadrangularis Vell. = *Verbena bonariensis*
 **Verbena rigida* Sprengel - SL
Verbena scaberrima Cham. = *Verbena rigida*
 **Verbena supina* L. - LE NU GT FR EA EP NL MU YP SL SE
Verbena tenera Sprengel = *Verbena tenuisecta*
 **Verbena tenuisecta* Briq. - YP SL
Verbena trichotoma Moench = *Verbena bonariensis*
Verbena venosa Gillies & Hook. = *Verbena rigida*
Zapania nodiflora (L.)Lam. = *Phyla nodiflora*

91.386 AVICENNIACEAE

- Avicennia marina* (Forsskal)Vierh. var. *australasica* (Walp.)Mold. =
 Avicennia marina var. *resinifera*
Avicennia marina (Forsskal)Vierh. var. *resinifera* (Forster f.)Bakh. - EP NL YP SL
Avicennia mindanaensis Elmer = *Avicennia marina* var. *resinifera*
Avicennia officinalis sensu J.Black (1926) = *Avicennia marina* var. *resinifera*
Avicennia resinifera Forster f. = *Avicennia marina* var. *resinifera*
Avicennia tomentosa L. var. *australasica* Walp. = *Avicennia marina* var. *resinifera*
Avicennia tomentosa sensu R.Br. (1810) = *Avicennia marina* var. *resinifera*
Sceura marina Forsskal = *Avicennia marina* var. *resinifera*

91.387 CHLOANTHACEAE

- Chloanthes lewellinii* F.Muell. = *Dicrasyllis lewellinii*
Dicrasyllis beveridgei F.Muell. var. *beveridgei* - NW NU
Dicrasyllis beveridgei F.Muell. var. *lanata* Munir - NW NU GT
Dicrasyllis carnegiei Hemsl. = *Dicrasyllis doranii*
Dicrasyllis costelloi Bailey var. *costelloi* - LE
Dicrasyllis costelloi Bailey var. *globulifera* Munir - LE

91.387 CHLOANTHACEAE (contd)

- Dicrastylis costelloi* Bailey var. *violacea* Munir - LE
Dicrastylis doranii F.Muell. - NW
Dicrastylis doranii F.Muell. var. *eriantha* sensu J.Black (1957) =
Dicrastylis costelloi var. *violacea*
Dicrastylis doranii sensu J.Black (1957) = *Dicrastylis costelloi* var. *costelloi*
Dicrastylis doranii sensu Tate (1896) = *Dicrastylis costelloi* var. *violacea*
Dicrastylis exsuccosa (F.Muell.) Druce var. *exsuccosa* - NW
Dicrastylis exsuccosa (F.Muell.) Druce var. *tomentosa* Munir - NW
Dicrastylis gilesii F.Muell. var. *bagotensis* Munir - NW
Dicrastylis gilesii F.Muell. var. *gilesii* - NW
Dicrastylis lewellinii (F.Muell.) F.Muell. - LE NU
Dicrastylis ochrotricha F.Muell. = *Dicrastylis exsuccosa* var. *exsuccosa*
Dicrastylis ochrotricha sensu Tate (1894) = *Dicrastylis exsuccosa* var. *tomentosa*
Dicrastylis petermannensis Munir - NW
Dicrastylis verticillata J.Black - GT EP MU
Dicrastylis weddii Bailey = *Dicrastylis lewellinii*
Newcastelia bracteosa F.Muell. - NW
Newcastelia cephalantha F.Muell. var. *cephalantha* - NW LE
Newcastelia cephalantha F.Muell. var. *queenslandica* Domin =
Newcastelia cephalantha var. *cephalantha*
Newcastelia cephalantha F.Muell. var. *tephropepla* Munir - NW
Newcastelia elliptica Munir = *Newcastelia bracteosa*
Newcastelia hexarrhena sensu Diels & E.Pritzel (1904) = *Newcastelia bracteosa*
Newcastelia spodioptricha F.Muell. - NW LE
Newcastelia dixonii F.Muell. & Tate = **SOLANACEAE**
Pityrodia exsuccosa F.Muell. = *Dicrastylis exsuccosa* var. *exsuccosa*
Spartothamnella teucriflora (F.Muell.) Mold. - NW LE GT FR
Spartothamnus teucriflorus F.Muell. = *Spartothamnella teucriflora*

91.391 CALLITRICHACEAE

- **Callitriche hamulata* Kütz. - SE
Callitriche sonderi Hegelm. - LE MU
Callitriche stagnalis Scop. - NL SL SE
Callitriche umbonata Hegelm. - SL SE
Callitriche verna sensu J.Black (1952) = *Callitriche stagnalis*

91.392 LABIATAE

- Ajuga australis* R.Br. form A - FR EA EP NL MU YP SL KI SE
Ajuga australis R.Br. form B - SL SE
Ajuga grandiflora Stapf = *Ajuga australis* form A
**Ajuga iva* (L.) Schreber - MU YP SL
Ajuga pseudo-iva Robill. & Castagne ex DC. = *Ajuga iva*
Ajuga sinuata R.Br. = *Ajuga australis* form A
Brunella vulgaris L. = *Prunella vulgaris*
Calamintha adscendens Jordan = *Calamintha sylvatica* ssp. *adscendens*
Calamintha glandulosa (Req.) Benth. = *Calamintha nepeta* ssp. *glandulosa*
**Calamintha nepeta* (L.) Savi ssp. *glandulosa* (Req.) P.Ball - SL
**Calamintha sylvatica* Bromf. ssp. *adscendens* (Jordan) P.Ball - not in S.Aust.
**Cedronella canariensis* (L.) Webb & Berth. - SL
Cryphia microphylla R.Br. = *Prostanthera serpyllifolia* ssp. *microphylla*
Cryphia serpyllifolia R.Br. = *Prostanthera serpyllifolia* ssp. *serpyllifolia*
Dracocephalum canariense L. = *Cedronella canariensis*
Glechoma arvensis L. = *Stachys arvensis*
**Glechoma hederacea* L. - ?SL
Klanderia chlorantha F.Muell. = *Prostanthera chlorantha*
**Lamium amplexicaule* L. - NW FR EP NL MU YP SL SE
**Lamium purpureum* L. - SL
**Lavandula dentata* L. - MU YP SL
**Lavandula multifida* L. - ?YP
**Lavandula stoechas* L. - NL MU SL
Lycopus australis R.Br. - MU SL SE
**Marrubium vulgare* L. - NU GT FR EA EP NL MU YP SL SE
Melissa nepeta L. = *Calamintha nepeta* ssp. *glandulosa*
**Melissa officinalis* L. - SL

91.392 LABIATAE (contd)

- **Mentha* × *piperita* L. var. × *citrata* (Ehrh.) Briq. - NL MU SL SE
 **Mentha* × *piperita* L. var. × *piperita* - SL
Mentha australis R.Br. - LE NU FR EP MU SL
Mentha citrata Ehrh. = *Mentha* × *piperita* var. × *citrata*
Mentha diemenica Sprengel - NL SL SE
Mentha gracilis R.Br. = *Mentha diemenica*
Mentha laxiflora Benth. - SE
 **Mentha longifolia* (L.) Hudson - SL
 **Mentha pulegium* L. - EP NL MU SL KI SE
 **Mentha rotundifolia* (L.) Hudson - SL
Mentha satureioides R.Br. - FR EP NL YP SL KI SE
Mentha serpyllifolia Benth. = *Mentha diemenica*
 **Mentha spicata* L. form A - MU SL SE
 **Mentha spicata* L. form B - MU YP SL SE
Mentha spicata L. var. *longifolia* L. = *Mentha longifolia*
Mentha spicata L. var. *rotundifolia* L. = *Mentha rotundifolia*
 **Moluccella laevis* L. - NL
 **Nepeta cataria* L. - SL
 **Ocimum basilicum* L. - SL
Plectranthus intraterraneus S.T.Blake - NW FR EP
Plectranthus parviflorus sensu J.Black (1957) = *Plectranthus intraterraneus*
Prostanthera althoferi Conn ssp. *longifolia* Conn - NW LE NU GT EP
Prostanthera ammophila Conn - FR EP
Prostanthera aspalathoides Cunn. ex Benth. - EP MU YP SL KI SE
Prostanthera baxteri Cunn. ex Benth. = *Prostanthera sericea*
Prostanthera baxteri Cunn. ex Benth. var. *crassifolia* sensu J.Black (1957) =
 Prostanthera althoferi ssp. *longifolia*
Prostanthera baxteri Cunn. ex Benth. var. *sericea* J.Black = *Prostanthera sericea*
Prostanthera behriana Schldl. - FR EP NL MU SL KI SE
Prostanthera calycina F.Muell. ex Benth. - EP
Prostanthera chlorantha (F.Muell.) F.Muell. ex Benth. - EP MU YP SL KI
Prostanthera coccinea F.Muell., partly = *Prostanthera serpyllifolia* ssp. *microphylla*
Prostanthera coccinea F.Muell., partly = *Prostanthera aspalathoides*
Prostanthera coccinea F.Muell., partly = *Prostanthera serpyllifolia* ssp. *serpyllifolia*
Prostanthera eurybioides F.Muell. - FR MU SE
Prostanthera florifera Conn - EP
Prostanthera lasianthos Labill. - not in S.Aust.
Prostanthera microphylla Cunn. ex Benth. = *Prostanthera serpyllifolia* ssp. *microphylla*
Prostanthera nudula Black ex E.Robertson - NW
Prostanthera rotundifolia R.Br. - not in S.Aust.
Prostanthera sericea (J.Black) Conn - NW
Prostanthera serpyllifolia (R.Br.) Briq. ssp. *serpyllifolia* - EP YP KI
Prostanthera serpyllifolia (R.Br.) Briq. ssp. *microphylla* (Cunn. ex Benth.) Conn -
 EP MU YP KI SE
Prostanthera sp. A = *Prostanthera ammophila*
Prostanthera sp. B = *Prostanthera althoferi* ssp. *longifolia*
Prostanthera spinosa F.Muell. - FR EP KI
Prostanthera striatiflora F.Muell. - NW LE GT FR EA EP NL MU
Prostanthera wilkieana F.Muell. - NW NU GT
Prunella vulgaris L. - ?MU SL
 **Rosmarinus officinalis* L. - EP YP SL
 **Salvia aethiopis* L. - NL
 **Salvia aurea* L. - SL
 **Salvia lanigera* Poir. - EP MU SL
 Salvia lanigera sensu J.Black (1957) = *Salvia verbenaca* form B
 **Salvia reflexa* Hornem. - EA NL SE
 **Salvia verbenaca* L. form A - FR EP NL MU YP SL KI SE
 **Salvia verbenaca* L. form B - FR EP NL MU YP SL SE
Scutellaria humilis R.Br. - FR MU SL KI
 **Stachys arvensis* (L.) L. - MU SL SE
 **Stachys byzantina* C.Koch - SL
 **Stachys germanica* L. - ?SL
 Stachys lanata Jacq. = *Stachys byzantina*
 Stachys olympica Poir. = *Stachys byzantina*

91.392 LABIATAE (contd)

- Teucrium albicaule* Toelken - LE EA MU
Teucrium corymbosum R.Br. - NW NU FR EP NL MU
Teucrium grandiusculum F.Muell. & Tate ssp. *grandiusculum* - NW
Teucrium grandiusculum F.Muell. & Tate ssp. *pilosum* Toelken - NU GT
Teucrium iva L. = *Ajuga iva*
Teucrium racemosum R.Br. - NW LE GT FR EA EP NL MU YP SL SE
Teucrium racemosum R.Br. var. *triflorum* J.Black = *Teucrium racemosum*
Teucrium racemosum R.Br. var. *tripartitum* F.Muell. ex Benth. = *Teucrium albicaule*
Teucrium sessiliflorum Benth. - NU FR EA EP NL MU YP SL
Thymus glandulosus Req. = *Calamintha nepeta* ssp. *glandulosa*
**Thymus vulgaris* L. - SE
Westringia angustifolia sensu J.Black = *Westringia dampieri*
Westringia cinerea R.Br. = *Westringia dampieri*
Westringia dampieri R.Br. - EP KI
Westringia eremicola Cunn. ex Benth. - EP MU YP SL KI SE
Westringia grevillina F.Muell. - NU EP MU YP SL KI SE
Westringia grevillina F.Muell. = *Westringia dampieri*
Westringia rigida R.Br. - NW NU GT FR EA EP NL MU YP SL SE

91.395 SOLANACEAE

- Anthocercis angustifolia* F.Muell. - FR NL SL
Anthocercis anisantha Endl. ssp. *anisantha* - EP
Anthocercis anisantha Endl. ssp. *collina* Haegi - EP
Anthocercis frondosa sensu J.Black (1957) = *Cyphanthera anthocercidea*
Anthocercis hopwoodii F.Muell. = *Duboisia hopwoodii*
Anthocercis myosotidea F.Muell. = *Cyphanthera myosotidea*
Anthotroche blackii F.Muell. = *Anthotroche pannosa*
Anthotroche blackii sensu J.Black (1957), partly = *Grammosolen dixonii*
Anthotroche pannosa Endl. - not in S.Aust.
Anthotroche truncata Ising = *Grammosolen truncatus*
Atropa physalodes L. = *Nicandra physalodes*
**Cestrum parqui* L'Hér. - NL MU SL KI SE
Cyphanthera anthocercidea (F.Muell.)Haegi - not in S.Aust.
Cyphanthera myosotidea (F.Muell.)Haegi - EP MU KI
**Datura ferox* L. - FR EA EP NL MU YP SL
**Datura inoxia* Miller - FR EA EP NL MU YP
**Datura leichhardtii* F.Muell. ex Benth. - NW LE GT FR EA
**Datura metel* L. - ?SL
**Datura stramonium* L. - FR EA EP NL MU YP SL KI SE
Datura tatula L. = *Datura stramonium*
**Datura wrightii* Regel - FR MU SL
Duboisia hopwoodii (F.Muell.)F.Muell. - NW LE NU GT EP MU
Grammosolen dixonii (F.Muell. & Tate)Haegi - EP NL MU YP
Grammosolen truncatus (Ising)Haegi - NW NU GT EP
**Hyoscyamus niger* L. - ?NL
Lycium australe F.Muell. - NW LE NU GT FR EA EP MU YP
**Lycium barbarum* L. - SL
Lycium chinense sensu Benth. (1869) = *Lycium barbarum*
**Lycium ferocissimum* Miers - FR EA EP NL MU YP SL KI SE
Lycopersicon esculentum Miller - LE SL
Lycopersicon lycopersicum (L.)Karsten = *Lycopersicon esculentum*
Newcastelia dixonii F.Muell. & Tate = *Grammosolen dixonii*
**Nicandra physalodes* (L.)Gaertner - NL SL ?SE
Nicotiana burbridgei Symon - LE
Nicotiana excelsior (J.Black)J.Black - NW ?LE ?FR
**Nicotiana glauca* Graham - LE NU GT FR EA EP NL MU YP SL KI SE
Nicotiana goodspeedii H.Wheeler - NW NU FR EA EP NL MU YP
Nicotiana gossei Domin - NW
Nicotiana maritima H.Wheeler - FR EP NL MU YP SL KI SE
Nicotiana occidentalis H.Wheeler ssp. *obliqua* N.Burb. - NW LE NU FR EP MU
Nicotiana rosulata (S.Moore)Domin ssp. *ingulba* (J.Black)P.Horton - not in S.Aust.
Nicotiana rosulata (S.Moore)Domin ssp. *rosulata* - NW GT
Nicotiana simulans N.Burb. - NW LE GT FR EA
Nicotiana suaveolens Lehm. var. *excelsior* J.Black = *Nicotiana excelsior*

91.395 SOLANACEAE (contd)

- Nicotiana suaveolens* Lehm. var. *rosulata* S.Moore = *Nicotiana rosulata* ssp. *rosulata*
Nicotiana velutina H.Wheeler - NW LE NU GT FR EA EP NL MU
Physalis organifolia Lam. = *Salpichroa organifolia*
 **Physalis peruviana* L. - SL SE
Physalis somnifera L. = *Withania somnifera*
 **Physalis viscosa* L. - MU SL ?SE
 **Salpichroa organifolia* (Lam.)Baillon - MU SL SE
 **Solanum aviculare* Forster f. - EP
Solanum capsiciforme (Domin)Baylis - NU EP NL MU YP SL KI
Solanum centrale J.Black - NW LE
Solanum chenopodium F.Muell. - LE GT FR EA EP
 **Solanum cinereum* R.Br. - FR EP NL SL
Solanum cleistogamum Symon - NW LE GT FR EP
Solanum coactiliferum J.Black - NW LE NU GT FR EA EP NL MU YP
Solanum eardleyae Symon - NW
 **Solanum elaeagnifolium* Cav. - EP NL MU YP SL SE
Solanum ellipticum R.Br. - NW LE NU GT FR EA EP MU
Solanum ellipticum R.Br. var. *duribaccalis* J.Black = *Solanum quadriloculatum*
Solanum ellipticum R.Br. var. *mollibaccalis* J.Black = *Solanum ellipticum*
Solanum eremophilum F.Muell. - FR
Solanum esuriale Lindley - LE GT FR EA NL MU SL
Solanum ferocissimum Lindley - NW
 **Solanum giganteum* Jacq. - not in S.Aust.
Solanum hermanni Dunal = *Solanum linnaeanum*
 **Solanum hoplopetalum* Bitter & Summerh. - ?SE
Solanum hystrix R.Br. - NU EP
Solanum laciniatum Aiton - EP NL SL KI SE
Solanum lacunarium F.Muell. - LE GT FR MU
Solanum lasiophyllum Dunal ex Poirer - NW LE GT
Solanum linnaeanum Hepper & Jaeger - EP MU SL KI SE
Solanum lithophilum F.Muell. = *Solanum ellipticum*
Solanum lycopersicum L. = *Lycopersicon esculentum*
 **Solanum marginatum* L.f. - SL SE
 **Solanum mauritianum* Scop. - SL
Solanum nemophilum sensu J.Black (1957) = *Solanum centrale*
 **Solanum nigrum* L. - LE NU GT FR EA EP NL MU YP SL KI SE
Solanum nitidibaccatum Bitter = *Solanum physalifolium* var. *nitidibaccatum*
Solanum oligacanthum F.Muell. - LE NL YP
Solanum opacum A.Braun & Bouché - MU
Solanum orbiculatum Dunal ssp. *orbiculatum* - NW NU GT
Solanum petrophilum F.Muell. - NW LE GT FR EA EP MU
 **Solanum physalifolium* Rusby var. *nitidibaccatum* (Bitter)Edmonds - SL
 **Solanum pseudocapsicum* L. - SL KI
Solanum quadriloculatum F.Muell. - NW LE GT FR EA EP
 **Solanum retroflexum* Dunal - EP YP
 **Solanum rostratum* Dunal - EP NL MU SL
Solanum sarrachoides Sendtner = *Solanum physalifolium* var. *nitidibaccatum*
Solanum simile F.Muell. - FR EP NL MU YP KI SE
Solanum sodomeum L. var. *hermanni* (Dunal)Dunal = *Solanum hermanni*
Solanum sturtianum F.Muell. - NW LE GT FR EA EP NL MU
Solanum sturtii F.Muell. = *Solanum sturtianum*
Solanum symonii H.Eichler - NU EP YP
 **Solanum triflorum* Nutt. - NL MU SL SE
 **Solanum villosum* Miller - SL
 **Withania somnifera* (L.)Dunal - EP
 **Withania somnifera* (L.)Dunal - EP SE

91.400 SCROPHULARIACEAE

- Antirrhinum cymbalaria* L. = *Cymbalaria muralis* ssp. *muralis*
Antirrhinum elatine L. = *Kickxia elatine* ssp. *elatine*
Antirrhinum graecum Bory & Chaub. = *Kickxia commutata* ssp. *graeca*
Antirrhinum orontium L. = *Misopates orontium*
Antirrhinum spurium L. = *Kickxia spuria* ssp. *spuria*
Bartschia latifolia (L.) Sibth. & Smith = *Parentucellia latifolia*
Bartschia trixago L. = *Bellardia trixago*
Bartschia viscosa L. = *Parentucellia viscosa*
Bartsia latifolia (L.) Sibth. & Smith = *Parentucellia latifolia*
Bartsia trixago L. = *Bellardia trixago*
Bartsia viscosa L. = *Parentucellia viscosa*
 **Bellardia trixago* (L.) All. - EP YP SL SE
Celsia cretica L. = *Verbascum creticum*
Celsia sinuata Cav. = *Verbascum creticum*
 **Cymbalaria muralis* P. Gaertner, B. Meyer & Scherb. ssp. *muralis* - YP SL SE
 **Dischisma arenarium* E. Meyer - YP SE
 **Dischisma capitatum* (Thunb.) Choisy - MU SL
Elacholoma hornii F. Muell. & Tate - LE
Euphrasia brownii F. Muell. = *Euphrasia collina* ssp. *collina*
Euphrasia collina R. Br. ssp. *collina* - SE
Euphrasia collina R. Br. ssp. *muelleri* (Wettst.) W. R. Barker - FR SL SE
Euphrasia collina R. Br. ssp. *osbornii* W. R. Barker - EP NL YP SL KI SE
Euphrasia collina R. Br. ssp. *paludosa* (R. Br.) W. R. Barker - SL
Euphrasia collina R. Br. ssp. *speciosa* (R. Br.) W. R. Barker - not in S. Aust.
Euphrasia collina R. Br. ssp. *tetragona* (R. Br.) W. R. Barker - ?FR EP MU YP ?SL KI SE
Euphrasia collina R. Br. ssp. *trichocalycina* (Gand.) W. R. Barker - SE
Euphrasia latifolia L. = *Parentucellia latifolia*
Euphrasia muelleri Wettst. = *Euphrasia collina* ssp. *muelleri*
Euphrasia osbornii Du Rietz = *Euphrasia collina* ssp. *osbornii*
Euphrasia paludosa R. Br. = *Euphrasia collina* ssp. *paludosa*
Euphrasia scabra R. Br. - EP SL SE
Euphrasia speciosa R. Br. = *Euphrasia collina* ssp. *speciosa*
Euphrasia tetragona R. Br. = *Euphrasia collina* ssp. *tetragona*
Euphrasia trichocalycina Gand. = *Euphrasia collina* ssp. *trichocalycina*
Glossostigma diandrum (L.) Kuntze - NW LE FR EA EP MU KI
Glossostigma drummondii Benth. - NW LE EP ?SL KI
Glossostigma elatinoides (Benth.) Benth. ex Hook. f. - MU SL SE
Glossostigma sp. A - LE GT FR EA EP MU SL
Glossostigma sp. B - EP
Glossostigma spathulatum Wight & Arn. ex Arn. = *Glossostigma diandrum*
Glossostigma spathulatum sensu J. Black (1926), partly = *Glossostigma* sp. A
Gratiola pedunculata R. Br. - MU
Gratiola peruviana L. - MU SL KI SE
Gratiola peruviana L. var. *pumila* (F. Muell.) Benth. = *Gratiola pumilo*
Gratiola peruviana sensu J. Black (1957), partly = *Gratiola pubescens*
Gratiola pubescens R. Br. - KI SE
Gratiola pumila F. Muell. = *Gratiola pumilo*
Gratiola pumilo F. Muell. - NL MU SL SE
Gratiola sexdentata R. Cunn. & Cunn. = ?*Gratiola pumilo*
Hebe parviflora (M. Vahl) Cockayne & Allan - ?SL
Hebe speciosa (Cunn.) Cockayne & Allan - ?SL
Hebenstretia capitata Thunb. = *Dischisma capitatum*
 **Kickxia commutata* (Bernh. ex Reichb.) Fritsch
 ssp. *graeca* (Bory & Chaub.) Ros. Fernandes - SL
 **Kickxia elatine* (L.) Dumort. ssp. *crinita* (Mabille) W. Greuter -
 LE FR EP NL MU SL KI SE
 **Kickxia elatine* (L.) Dumort. ssp. *elatine* - SL
Kickxia elatine (L.) Dumort. ssp. *sieberi* (Reichb.) Hayek = *Kickxia elatine* ssp. *crinita*
Kickxia graeca (Bory & Chaub.) Pau = *Kickxia commutata* ssp. *graeca*
Kickxia sieberi (Reichb.) Dorfler = *Kickxia elatine* ssp. *crinita*
 **Kickxia spuria* (L.) Dumort. ssp. *spuria* - NL SL
Limnophila morgania F. Muell., partly = *Morgania floribunda*
Limnophila morgania F. Muell., partly = *Morgania glabra*
Limosella aquatica sensu J. Black (1926) = *Limosella australis*

91.400 SCROPHULARIACEAE (contd)

- Limosella australis* R.Br. - LE EP NL MU YP SL KI SE
Limosella curdieana F.Muell. - NW LE GT FR EA EP MU
Limosella diandra L. = *Glossostigma diandrum*
Limosella granitica W.R.Barker - EP
Limosella lineata Glueck = *Limosella australis*
Limosella lineata Glueck var. *brevistylis* Glueck = *Limosella australis*
Linaria commutata Bernh. ex Reichb. = *Kickxia commutata* ssp. *graeca*
Linaria crinita Mabilie = *Kickxia elatine* ssp. *crinita*
Linaria cymbalaria (L.) Miller = *Cymbalaria muralis* ssp. *muralis*
Linaria elatine (L.) Miller = *Kickxia elatine* ssp. *elatine*
Linaria elatine (L.) Miller var. *lasiopoda* Vis. = *Kickxia elatine* ssp. *crinita*
Linaria elatine (L.) Miller var. *villosa* Boiss. = *Kickxia elatine* ssp. *crinita*
Linaria graeca (Bory & Chaub.) Chav. = *Kickxia commutata* ssp. *graeca*
**Linaria incarnata* (Vent.) Sprengel - ?SL
Linaria sieberi Reichb. = *Kickxia elatine* ssp. *crinita*
**Linaria* sp. - ?FR ?SL
Linaria spuria (L.) Miller = *Kickxia spuria* ssp. *spuria*
Manulea divaricata Thunb. = *Zaluzianskya divaricata*
Manulea heterophylla L.f. = *Polycarena heterophylla*
Mazus pumilio R.Br. - SE
Mimulus gracilis R.Br. - LE SE
**Mimulus moschatus* Douglas ex Lindley - SL
Mimulus prostratus Benth. - LE MU
Mimulus repens R.Br. - LE GT EP NL MU SL KI SE
**Misopates orontium* (L.) Raf. - FR EP NL SL KI SE
Morgania floribunda Benth. - NW LE GT FR EA EP NL MU SL
Morgania glabra R.Br. - LE
Morgania glabra sensu J.Black, partly = *Morgania floribunda*
Parahebe decorosa (F.Muell.) B.Briggs & Ehrend. - FR EA EP NL MU
Parahebe derwentiana (Andrews) B.Briggs & Ehrend. - SL KI SE
**Parentucellia latifolia* (L.) Caruel - EP NL MU YP SL KI SE
**Parentucellia viscosa* (L.) Caruel - SL SE
Peplidium humifusum sensu Tate (1890) = *Peplidium* sp. D
Peplidium maritimum sensu J.Black (1933) = *Peplidium* sp. D
Peplidium muelleri Benth. - LE
Peplidium muelleri Benth. ssp. B = *Peplidium muelleri*
Peplidium muelleri Benth. var. *longipes* J.Black = *Peplidium* sp. B
Peplidium muelleri Benth. var. *muelleri* sensu J.Black (1926), partly = *Peplidium* sp. B
Peplidium muelleri sensu E.Robertson (1957) = *Peplidium* sp. B
Peplidium sp. B - NW LE GT
Peplidium sp. D - LE GT EA MU
Phyllopodium heterophyllum (L.f.) Benth. = *Polycarena heterophylla*
**Polycarena heterophylla* (L.f.) Levyns - EP MU SL
**Polycarena leipoldtii* Hiern - NL SL
Stemodia morgania (F.Muell.) F.Muell., partly = *Morgania floribunda*
Stemodia morgania (F.Muell.) F.Muell., partly = *Morgania glabra*
Stemodia pedicellaris F.Muell. = *Stemodia viscosa*
Stemodia viscosa Roxb. - NW
Tricholoma elatinoides Benth. = *Glossostigma elatinoides*
**Verbascum creticum* (L.) Cav. - SL KI
**Verbascum thapsus* L. ssp. *thapsus* - SE
**Verbascum virgatum* Stokes - FR EP SL SE
**Veronica anagallis-aquatica* L. - MU SE
Veronica aquatica Bernh. = *Veronica anagallis-aquatica*
**Veronica arvensis* L. - EP NL SL SE
Veronica buxbaumii Ten. = *Veronica persica*
Veronica calycina R.Br. - KI SE
Veronica catenata Pennell = *Veronica anagallis-aquatica*
**Veronica catenata* Pennell ssp. *catenata* - SE
Veronica connata Raf. = *Veronica ?anagallis-aquatica*
Veronica connata Raf. var. *glaberrima* Pennell = ?*Veronica anagallis-aquatica*
Veronica decorosa F.Muell. = *Parahebe decorosa*
Veronica derwentia Andrews = *Parahebe derwentiana*
Veronica derwentiana Andrews = *Parahebe derwentiana*

91.400 SCROPHULARIACEAE (contd)

- Veronica distans* sensu E.Robertson (1957) = *Veronica hillebrandii*
Veronica gracilis R.Br. - SL SE
Veronica hederifolia L. = *Veronica hederifolia*
 **Veronica hederifolia* L. - NL YP SL SE
Veronica hillebrandii F.Muell. - EP MU YP SL KI
Veronica labiata R.Br. = *Parahebe derwentiana*
Veronica parnkalliana J.Black - FR EP NL
Veronica parviflora M.Vahl = *Hebe parviflora*
 **Veronica peregrina* L. ssp. *xalapensis* (Kunth)Pennell - LE NL MU SL SE
 **Veronica persica* Poir. - SL SE
Veronica plebeia R.Br. - FR NL YP
Veronica plebeia R.Br. = *Veronica plebeia*
Veronica salina Schuer = *Veronica catenata* ssp. *catenata*
Veronica speciosa R.Cunn. ex Cunn. = *Hebe speciosa*
Veronica tournefortii C.Gmelin = *Veronica persica*
Veronica xalapensis Kunth = *Veronica peregrina* ssp. *xalapensis*
Zaluzianskia divaricata (Thunb.)Walp. = *Zaluzianskia divaricata*
 **Zaluzianskia divaricata* (Thunb.)Walp. - EP ?NL MU YP SL KI SE

91.403 BIGNONIACEAE

- Bignonia pandorana* Andrews = *Pandorea pandorana*
Pandorea australis (R.Br.)Spach = *Pandorea pandorana*
Pandorea doratoxylon (J.Black)J.Black = *Pandorea pandorana*
Pandorea pandorana (Andrews)Steenis - NW
Tecoma alata DC. - ?SL
Tecoma australis R.Br. = *Pandorea pandorana*
Tecoma doratoxylon J.Black = *Pandorea pandorana*
Tecoma oxleyi Cunn. ex A.DC. = *Pandorea pandorana*
Tecoma pandorana (Andrews)Steetz = *Pandorea pandorana*

91.405 ACANTHACEAE

- **Acanthus mollis* L. - SL SE
Dipteracanthus australasicus F.Muell. ssp. *australasicus* - LE
Dipteracanthus australasicus F.Muell. ssp. *glabratus* R.M.Barker - LE
Dipteracanthus corynothecus (F.Muell. ex Benth.)Bremek. =
 Dipteracanthus australasicus ssp. *australasicus*
Dipteracanthus corynothecus (F.Muell. ex Benth.)Bremek. var. *grandiflorus* Bremek. =
 Dipteracanthus australasicus ssp. *australasicus*
Dipteracanthus corynothecus (F.Muell. ex Benth.)Bremek. ex W.R.Barker =
 Dipteracanthus australasicus ssp. *australasicus*
Dipteracanthus primulaceus (F.Muell. ex Benth.)Bremek. =
 Dipteracanthus australasicus ssp. *australasicus*
Dipteracanthus sessiliflorus Bremek. = *Dipteracanthus australasicus* ssp. *australasicus*
Justicia adscendens R.Br. = *Rostellularia adscendens*
Justicia clementii Domin =
 Rostellularia adscendens ssp. *clementii* (Domin)R.M.Barker var. *clementii*
Justicia procumbens L. var. *latifolia* Domin =
 Rostellularia adscendens ssp. *adscendens* var. *latifolia*
Justicia procumbens sensu E.Robertson (1957), partly = *Rostellularia adscendens*
Rostellularia adscendens (R.Br.)R.M.Barker ssp. *adscendens*
 var. *latifolia* (Domin)R.M.Barker - LE
Rostellularia adscendens (R.Br.)R.M.Barker ssp. *adscendens*
 var. *pogonantha* (F.Muell.)R.M.Barker - LE
Rostellularia adscendens (R.Br.)R.M.Barker ssp. *clementii* (Domin)R.M.Barker
 var. *clementii* (Domin)R.M.Barker - LE
Rostellularia pogonantha F.Muell. =
 Rostellularia adscendens ssp. *adscendens* var. *pogonantha*
Rostellularia sp. (Barker, 1981) = *Rostellularia adscendens* ssp. *adscendens* var. *latifolia*
Rostellularia sp. A = *Rostellularia adscendens* ssp. *adscendens* var. *latifolia*
Ruellia corynotheca F.Muell. ex Benth. = *Dipteracanthus australasicus* ssp. *australasicus*
Ruellia primulacea F.Muell. ex Benth. = *Dipteracanthus australasicus* ssp. *australasicus*

91.408 PEDALIACEAE*Josephinia eugeniae* F.Muell. - NW LE**91.410 MARTYNIACEAE***Martynia louisiana* Miller = *Proboscidea lousianica**Martynia louisianica* Miller = *Proboscidea lousianica**Martynia proboscidea* Glox. = *Proboscidea lousianica**Proboscidea jussieu* Keller = *Proboscidea lousianica**Proboscidea louseana* (Miller) Woot. & Standl. = *Proboscidea lousianica***Proboscidea lousianica* (Miller) Thell. - FR NL MU SL**91.413 OROBANCHACEAE***Orobanche australiana* F.Muell. ex Tate = *Orobanche cernua* var. *australiana**Orobanche cernua* Loeff. forma *australiana* (F.Muell. ex Tate) G.Beck =*Orobanche cernua* var. *australiana**Orobanche cernua* Loeff. var. *australiana* (F.Muell. ex Tate) J.Black ex G.Beck -

LE GT EA EP MU YP SL

Orobanche mutellii* F.Schultz - SLOrobanche ramosa* L. - ?SL**91.414 LENTIBULARIACEAE***Polypompholyx tenella* (R.Br.) Lehm. = *Utricularia tenella**Utricularia australis* R.Br. - FR SE*Utricularia dichotoma* Labill. - FR SL KI SE*Utricularia flexuosa* sensu H.Eichler (1965) = *Utricularia australis**Utricularia lateriflora* R.Br. - SL KI SE*Utricularia tenella* R.Br. - EP SL KI SE*Utricularia violacea* R.Br. - SE**91.415 MYOPORACEAE***Beyeria uncinate* F.Muell. ex Baillon = *Eremophila sturtii**Beyeria uncinata* F.Muell. ex Baillon = MYOPORACEAE*Cryptandra uncinata* (F.Muell. ex Baillon) Gruen. = *Eremophila sturtii**Duttonia gibbifolia* F.Muell. = *Eremophila gibbifolia**Eremodendron cunninghamii* A.DC. = *Eremophila oppositifolia* var. *oppositifolia**Eremophila alternifolia* R.Br. - NW NU GT FR EA EP NL MU*Eremophila alternifolia* R.Br. var. *latifolia* Benth. = *Eremophila alternifolia**Eremophila arachnoides* Chinn. ssp. *tenera* Chinn. - NW NU GT*Eremophila arborescens* Cunn. = *Eremophila oppositifolia* var. *oppositifolia**Eremophila battii* F.Muell. - NW LE NU*Eremophila behriana* (F.Muell.) F.Muell. - EP NL MU YP SL KI*Eremophila berryi* F.Muell. = *Eremophila gilesii**Eremophila bignoniiflora* (Benth.) F.Muell. - LE MU*Eremophila brownii* F.Muell. = *Eremophila glabra**Eremophila calycina* S.Moore = *Eremophila duttonii**Eremophila clarkei* Oldfield & F.Muell. - NW NU*Eremophila crassifolia* (F.Muell.) F.Muell. - EP NL MU*Eremophila cunninghamii* (A.DC.) R.Br. = *Eremophila oppositifolia* var. *oppositifolia**Eremophila dalyana* F.Muell. - LE*Eremophila decipiens* Ostenf. - NU*Eremophila delisseri* F.Muell. - NU GT*Eremophila denticulata* sensu J.Black (1957) = *Eremophila decipiens**Eremophila deserti* (Cunn. ex Benth.) Chinn. - NW LE NU GT FR EA EP NL MU YP SL*Eremophila divaricata* (F.Muell.) F.Muell. - MU*Eremophila duttonii* F.Muell. - LE GT FR EA EP*Eremophila elderi* F.Muell. - NW*Eremophila exotrichys* Kraenzlin = *Eremophila platythamnus**Eremophila forrestii* F.Muell. - NW*Eremophila freelingii* F.Muell. - NW LE GT FR EA*Eremophila gibbifolia* (F.Muell.) F.Muell. - EP MU SL*Eremophila gibsonii* F.Muell. - NW NU GT*Eremophila gilesii* F.Muell. - NW LE*Eremophila glabra* (R.Br.) Ostenf. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Eremophila goodwinii* sensu J.Black (1957) = *Eremophila clarkei**Eremophila hillii* E.Shaw - NU

91.415 MYOPORACEAE (contd)

- Eremophila interstans* (S.Moore) Diels var. *interstans* - EP
Eremophila latifolia F.Muell. = *Eremophila serrulata*
Eremophila latrobei F.Muell. var. *glabra* L.S.Smith - NW LE NU GT FR EA EP
Eremophila latrobei F.Muell. var. *latrobei* - NW LE
Eremophila leucophylla Benth. = *Eremophila forrestii*
Eremophila longifolia (R.Br.) F.Muell. - NW LE NU GT FR EA EP NL MU YP SL
Eremophila macdonnellii F.Muell. - NW LE GT FR
Eremophila macdonnellii F.Muell. var. *glabriuscula* J.Black = *Eremophila macdonnellii*
Eremophila macdonnellii F.Muell. var. *gracilis* J.Black = *Eremophila macdonnellii*
Eremophila magillivrayi J.Black - LE
Eremophila maculata (Ker Gawler) F.Muell. var. *brevifolia* Benth. - NW
Eremophila maculata (Ker Gawler) F.Muell. var. *maculata* -
 NW LE GT FR EA EP NL MU
Eremophila neglecta J.Black - NW LE
Eremophila obovata L.S.Smith var. *obovata* - LE
Eremophila oppositifolia R.Br. var. *angustifolia* S.Moore - NW
Eremophila oppositifolia R.Br. var. *oppositifolia* - NW GT FR EA EP NL MU
Eremophila paisleyi F.Muell. - NW LE NU GT
Eremophila parvifolia J.Black - NU EP
Eremophila pentaptera J.Black - LE GT
Eremophila platythamnos Diels - NW NU EP
Eremophila polyclada (F.Muell.) F.Muell. - LE MU
Eremophila rotundifolia F.Muell. - NW LE NU GT EP
Eremophila santalina (F.Muell.) F.Muell. - FR
Eremophila scoparia (R.Br.) F.Muell. - NW LE NU GT FR EA EP NL MU
Eremophila serrulata (Cunn. ex A.DC.) Druce - NW LE NU GT FR EA EP MU
Eremophila stehlowii E.Pritzel = *Eremophila macdonnellii*
Eremophila strongylophylla sensu J.Black (1957) = *Eremophila obovata* var. *obovata*
Eremophila sturtii R.Br. - NW GT FR EA
Eremophila subfloccosa Benth. - FR EP NL YP SL SE
Eremophila tietkensii F.Muell. & Tate = *Eremophila latrobei* var. *glabra*
Eremophila turtonii F.Muell. = *Eremophila forrestii*
Eremophila verrucosa Chinn. ssp. *brevistellata* Chinn. - NU
Eremophila verrucosa Chinn. ssp. *verrucosa* - NW LE
Eremophila weldii F.Muell. - NU EP YP KI
Eremophila willsii F.Muell. - NW LE NU GT
Myoporum dampieri Cunn. = *Myoporum acuminatum*
Myoporum acuminatum R.Br. - NW LE NU GT FR EA EP NL MU YP SL SE
Myoporum adscendens R.Br. = *Myoporum insulare*
Myoporum brevipes Benth. - GT FR EP MU KI SE
Myoporum cunninghamii Benth. = *Myoporum acuminatum*
Myoporum deserti Cunn. ex Benth. = *Eremophila deserti*
Myoporum humile R.Br. = *Myoporum parvifolium*
Myoporum insulare R.Br. - NU EP YP SL KI SE
Myoporum montanum R.Br. = *Myoporum acuminatum*
Myoporum mucronulatum A.DC. = *Eremophila deserti*
Myoporum parvifolium R.Br. - EP MU YP SL KI SE
Myoporum patens Cunn. = *Eremophila deserti*
Myoporum platycarpum R.Br. - NW LE NU GT FR EA EP NL MU YP SL SE
Myoporum refractum Maiden & Betche = *Myoporum brevipes*
Myoporum serratum R.Br. var. *obovatum* Benth. = *Myoporum insulare*
Myoporum strictum Cunn. = *Eremophila deserti*
Myoporum viscosum R.Br. - FR EP NL MU YP SL KI SE
Pholidia behriana F.Muell. = *Eremophila behriana*
Pholidia crassifolia F.Muell. = *Eremophila crassifolia*
Pholidia dalyana (F.Muell.) F.Muell. ex Benth. = *Eremophila dalyana*
Pholidia delisseri (F.Muell.) F.Muell. ex Benth. = *Eremophila delisseri*
Pholidia divaricata F.Muell. = *Eremophila divaricata*
Pholidia gibbifolia (F.Muell.) F.Muell. ex Benth. = *Eremophila gibbifolia*
Pholidia interstans S.Moore = *Eremophila interstans* var. *interstans*
Pholidia polyclada F.Muell. = *Eremophila polyclada*
Pholidia santalina (F.Muell.) F.Muell. ex Benth. = *Eremophila santalina*
Pholidia scoparia R.Br. = *Eremophila scoparia*
Pholidia weldii (F.Muell.) Diels = *Eremophila weldii*

91.415 MYOPORACEAE (contd)

- Pholidiopsis santalina* F.Muell. = *Eremophila santalina*
Sentis rhynchocarpa F.Muell. = *Eremophila divaricata*
Stenochilus bignoniaceflorus Benth. = *Eremophila bignoniiflora*
Stenochilus glaber R.Br. = *Eremophila glabra*
Stenochilus longifolius R.Br. = *Eremophila longifolia*
Stenochilus maculatus Ker Gawler = *Eremophila maculata* var. *maculata*
Stenochilus serrulatus Cunn. ex A.DC. = *Eremophila serrulata*

91.417 PLANTAGINACEAE

- **Plantago albicans* L. - EP SL
Plantago arenaria Waldst. & Kit. = *Plantago scabra*
**Plantago australis* Lam. - SL
**Plantago bellardii* All. - EP NL MU SL SE
Plantago commutata Guss. = *Plantago coronopus* ssp. *commutata*
**Plantago coronopus* L. ssp. *commutata* (Guss.) Pilger - LE EP NL MU YP SL SE
**Plantago coronopus* L. ssp. *coronopus* - EA EP NL MU SL KI SE
Plantago cunninghamii Decne. - LE FR MU SE
Plantago debilis R.Br. - FR SL ?SE
Plantago drummondii Decne. - NW LE NU GT FR EA EP MU SL
Plantago dubia L. = *Plantago lanceolata* var. *dubia*
Plantago gaudichaudii Barnéoud - GT FR EP NL YP SL SE
Plantago hispida R.Br. - LE FR EP NL YP SL KI SE
Plantago indica L. = *Plantago scabra*
**Plantago lanceolata* L. - FR NL MU YP SL KI SE
**Plantago lanceolata* L. var. *dubia* (L.) Wahlenberg - SL
**Plantago major* L. - MU SL SE
Plantago multiscapa B.Briggs - LE
Plantago psyllium sensu J.Black (1957) = *Plantago scabra*
**Plantago scabra* Moench - EP NL SL
Plantago sp. A - EP
Plantago sp. B - LE FR EP NL MU YP SL KI SE
Plantago turritifera B.Briggs et al. - NW LE FR EP MU
Plantago varia R.Br. - EP MU SL SE

91.418 CAPRIFOLIACEAE

- **Lonicera japonica* Thunb. - SL
**Sambucus gaudichaudiana* DC. - SE
**Sambucus nigra* L. - SL
**Viburnum tinus* L. - ?SL

91.423 VALERIANACEAE

- **Centranthus macrosiphon* Boiss. - SL SE
**Centranthus ruber* (L.) DC. ssp. *ruber* - YP SL
Fedia caupt-bovis Pomel = *Fedia graciliflora*
Fedia cornucopiae (L.) Gaertner - not in S.Aust.
Fedia cornucopiae sensu J.Black (1957), partly = *Centranthus macrosiphon*
Fedia cornucopiae sensu J.Black (1957), partly = *Fedia graciliflora*
Fedia graciliflora Fischer & C.Meyer - SL
Valeriana cornucopiae L. = *Fedia cornucopiae*
Valeriana locusta L. var. *discoidea* L. = *Valerianella discoidea*
Valeriana rubra L. = *Centranthus ruber* ssp. *ruber*
**Valerianella discoidea* (L.) Lois. - EP NL YP SL KI
**Valerianella eriocarpa* Desv. - SL SE
Valerianella truncata Bêche - ?not in S.Aust.

91.425 DIPSACACEAE

- Dipsacus fullonum* L. ssp. *sativus* (L.) Thell. = *Dipsacus sativus*
Dipsacus fullonum L. var. *sativus* L. = *Dipsacus sativus*
**Dipsacus sativus* (L.) Honck. - SL SE
**Scabiosa atropurpurea* L. - FR EP NL MU YP SL KI SE
Scabiosa atropurpurea L. ssp. *maritima* (L.) Arcang. = *Scabiosa atropurpurea*
Scabiosa atropurpurea L. var. *maritima* (L.) Beg. = *Scabiosa atropurpurea*
Scabiosa maritima L. = *Scabiosa atropurpurea*

91.427 CAMPANULACEAE

- Campanula gracilis* Forster.f. = *Wahlenbergia gracilis*
Campanula gracilis Forster.f. var. *stricta* R.Br. = *Wahlenbergia stricta* ssp. *stricta*
Campanula quadrifida R.Br. = *Wahlenbergia gracilis*
Cephalostigma fluminale J.Black = *Wahlenbergia fluminalis*
Isotoma fluviatilis (R.Br.)F.Muell. ex Benth. - SL SE
Isotoma petraea F.Muell. - NW LE GT FR EA EP NL MU
Isotoma scapigera (R.Br.)G.Don - GT EP YP
Laurentia fluviatilis (R.Br.)E.Wimmer = *Isotoma fluviatilis*
Laurentia petraea (F.Muell.)E.Wimmer = *Isotoma petraea*
Laurentia platycalyx F.Muell. = *Pratia platycalyx*
Laurentia scapigera (R.Br.)Endl. = *Isotoma scapigera*
Lobelia alata Labill. - FR EP NL MU SL KI SE
Lobelia anceps Thunb. = *Lobelia alata*
Lobelia benthamii F.Muell. = *Pratia puberula*
Lobelia browniana Roemer & Schultes = *Lobelia gibbosa*
Lobelia concolor R.Br. = *Pratia concolor*
 **Lobelia erinus* L. - SE
Lobelia fluviatilis R.Br. = *Isotoma fluviatilis*
Lobelia gibbosa Labill. - NW FR EP NL MU YP SL KI SE
Lobelia heterophylla Labill. - NW EP
Lobelia inundata R.Br. = *Isotoma fluviatilis*
Lobelia microsperma F.Muell. = *Lobelia gibbosa*
Lobelia pedunculata R.Br. = *Pratia pedunculata*
Lobelia platycalyx (F.Muell.)F.Muell. = *Pratia platycalyx*
Lobelia pratioides Benth. - SE
Lobelia purpurascens R.Br. = *Pratia purpurascens*
Lobelia rhombifolia Vriese - YP SL KI SE
Lobelia scapigera R.Br. = *Isotoma scapigera*
Lobelia simplex L. = *Monopsis simplex*
Lobelia simplicicaulis R.Br. - SE
 **Monopsis debilis* (L.f.)C.Presl. var. *depressa* (L.f.)Phillipson - KI SE
Monopsis simplex (L.)E.Wimmer = *Monopsis debilis* var. *depressa*
Pratia concolor (R.Br.)Druce - MU SE
Pratia erecta Gaudich. = *Pratia concolor*
Pratia pedunculata (R.Br.)Benth. - SL SE
Pratia platycalyx (F.Muell.)Benth. - SE
Pratia puberula Benth. - ?not in S.Aust.
Pratia purpurascens (R.Br.)E.Wimmer - SL
 **Trachelium caeruleum* L. ssp. *caeruleum* - SL
Wahlenbergia aridicolor P.J.Smith - FR
Wahlenbergia bicolor Loth. = *Wahlenbergia luteola*
Wahlenbergia communis Carolin - NW LE GT FR EA EP NL MU YP SL SE
Wahlenbergia consimilis Loth. = *Wahlenbergia stricta* ssp. *stricta*
Wahlenbergia fluminalis (J.Black)E.Wimmer ex H.Eichler - MU
Wahlenbergia gracilenta Loth. - LE GT FR EA EP NL MU YP SL KI SE
Wahlenbergia gracilis (Forster f.)Schrader - SL
Wahlenbergia graniticola Carolin - not in S.Aust.
Wahlenbergia gymnoclada Loth. - SE
Wahlenbergia litticola P.J.Smith - EP NL MU YP SL SE
Wahlenbergia luteola P.J.Smith - FR EP NL MU YP SL SE
Wahlenbergia multicaulis Benth. - EP NL MU SL KI SE
Wahlenbergia preissii Vriese - EP SL
Wahlenbergia quadrifida (R.Br.)A.DC. = *Wahlenbergia gracilenta*
Wahlenbergia queenslandica Carolin ex P.J.Smith - NW LE EP
Wahlenbergia sieberi A.DC. = *Wahlenbergia gracilenta*
Wahlenbergia simplicicaulis Vriese = *Wahlenbergia multicaulis*
Wahlenbergia sp. A = *Wahlenbergia aridicolor*
Wahlenbergia sp. B = *Wahlenbergia tumidifructu*
Wahlenbergia stricta (R.Br.)Sweet ssp. *stricta* - GT FR EP NL MU YP SL SE
Wahlenbergia tadgellii Loth. = *Wahlenbergia multicaulis*
Wahlenbergia trichogyna Stearn = *Wahlenbergia stricta* ssp. *stricta*
Wahlenbergia tumidifructu P.J.Smith - NW LE NU GT FR EA EP MU
Wahlenbergia vinciflora Loth. = *Wahlenbergia stricta* ssp. *stricta*

91.430 GOODENIACEAE

- Brunonia australis* Smith - NW LE GT SL SE
Calogyne berardiana (Gaudich.) Benth. = *Goodenia berardiana*
Catosperma goodeniaceum (F.Muell.) Krause - not in S.Aust.
Cooperhookia strophilata (F.Muell.) Carolin - NU
Dampiera dysantha (Benth.) Rajput & Carolin - FR EP NL MU SL SE
Dampiera eriantha Krause - not in S.Aust.
Dampiera lanceolata Cunn. ex DC. var. *insularis* Rajput & Carolin - KI
Dampiera lanceolata Cunn. ex DC. var. *intermedia* Rajput & Carolin - NL SL KI
Dampiera lanceolata Cunn. ex DC. var. *lanceolata* - NW NU GT EP NL SL KI SE
Dampiera lavandulacea sensu J.Black (1957) = *Dampiera dysantha*
Dampiera leptoclada Benth. - not in S.Aust.
Dampiera marifolia Benth. - MU SL KI SE
Dampiera ramosa Rajput - NW
Dampiera rosmarinifolia Schldl. var. *dysantha* Benth. = *Dampiera dysantha*
Dampiera rosmarinifolia Schldl. - NU EP NL MU YP SL SE
Distylis berardiana Gaudich. = *Goodenia berardiana*
Goodenia affinis (Vriese) Vriese - EP NL MU YP SL SE
Goodenia albida Smith = *Scaevola albida* var. *albida*
Goodenia albiflora Schldl. - FR EA NL MU SL
Goodenia amplexans F.Muell. - FR EP NL SL KI
Goodenia anfracta J.Black - NW LE
Goodenia argentea J.Black = *Goodenia lunata*
Goodenia basedowii Krause = *Goodenia ramellii*
Goodenia benthamiana Carolin - EP
Goodenia berardiana (Gaudich.) Carolin - NW LE GT FR EA EP NL
Goodenia blackiana Carolin - EP NL MU SL KI SE
Goodenia brunnea Carolin - NW
Goodenia calcarata F.Muell. - LE FR EA EP
Goodenia centralis Carolin - NW
Goodenia chambersii F.Muell. - LE
Goodenia cycloptera R.Br. - NW LE GT FR EA EP
Goodenia elongata Labill. - SL SE
Goodenia fascicularis F.Muell. & Tate - NW LE GT FR EA EP MU
Goodenia geniculata R.Br. - EP NL MU YP SL KI SE
Goodenia geniculata R.Br. var. *eriophylla* Benth. = *Goodenia affinis*
Goodenia geniculata R.Br. var. *robusta* Benth. = *Goodenia robusta*
Goodenia gibbosa Carolin - LE NU GT
Goodenia glabra R.Br. - NW LE NU EP
Goodenia glandulosa F.Muell. - NW
Goodenia glauca F.Muell. - NW LE FR MU
Goodenia glauca F.Muell. var. *sericea* Benth. = *Goodenia fascicularis*
Goodenia grandiflora Sims var. *albiflora* (Schldl.) Krause = *Goodenia albiflora*
Goodenia grandiflora Sims var. *nicholsonii* (F.Muell.) Krause = *Goodenia chambersii*
Goodenia grandiflora sensu J.Black (1957), partly = *Goodenia saccata*
Goodenia grandiflora sensu J.Black (1957), partly = *Goodenia brunnea*
Goodenia havilandii Maiden & Betche - NW NU EP MU
Goodenia havilandii Maiden & Betche var. *pauperata* J.Black = *Goodenia havilandii*
Goodenia helenae Ising = *Goodenia chambersii*
Goodenia heterochilla F.Muell. - NW LE EP
Goodenia heteromera F.Muell. - MU SE
Goodenia heteromera F.Muell. var. *deminuta* J.Black = *Goodenia heteromera*
Goodenia hirsuta F.Muell. - NW
Goodenia humilis R.Br. - SL SE
Goodenia lobata Ising - LE EP
Goodenia lunata J.Black - NW LE GT FR EA EP
Goodenia mitchellii Benth. = *Goodenia cycloptera*
Goodenia modesta J.Black - NW LE GT
Goodenia mueckeana F.Muell. - NW
Goodenia nicholsonii F.Muell. = *Goodenia chambersii*
Goodenia occidentalis Carolin - NW LE NU
Goodenia ovata Smith - FR EP NL SL KI SE
Goodenia pinnatifida Schldl. - NW LE NU GT FR EA EP NL MU YP SL SE
Goodenia primulacea sensu J.Black (1957) = *Goodenia blackiana*
Goodenia pusilliflora F.Muell. - NW GT FR EA EP NL MU YP SL

91.430 GOODENIACEAE (contd)

- Goodenia quasilibera* Carolin - EP
Goodenia ramellii F.Muell. - NW
Goodenia robusta (Benth.)Krause - FR EP NL MU SL SE
Goodenia rotundifolia sensu J.Black (1957) = *Goodenia centralis*
Goodenia saccata Carolin - FR
Goodenia subintegra F.Muell. ex Tate = *Goodenia fascicularis*
Goodenia triodiophila Carolin - ?LE
Goodenia unilobata J.Black = *Goodenia glabra*
Goodenia varia R.Br. - NU GT FR EP NL MU YP SL KI SE
Goodenia vernicosa J.Black - FR EA EP
Goodenia vilmorinae F.Muell. - NW
Goodenia willisiana Carolin - EP NL MU SL KI SE
Goodenia xanthosperma F.Muell. - NW
Lechenaultia divaricata F.Muell. - LE
Lechenaultia formosa R.Br. - not in S.Aust.
Lechenaultia striata F.Muell. - NW
Scaevola aemula R.Br. - EP NL MU SL KI SE
Scaevola aemula R.Br. sensu some authors = *Scaevola parvifolia* ssp. *parvifolia*
Scaevola albida (Smith)Druce var. *albida* - FR NL MU YP SL KI SE
Scaevola albida (Smith)Druce var. *pallida* (R.Br.)Carolin - SE
Scaevola amblyanthera F.Muell. var. *centralis* Carolin - NW
Scaevola angustata Carolin - EP YP SL KI SE
Scaevola basedowii Carolin - NW
Scaevola bursariifolia J.Black - LE EP
Scaevola calendulacea (Andrews)Druce - SL SE
Scaevola collaris F.Muell. - NW LE NU GT FR EA EP
Scaevola collina J.Black ex E.Robertson - NW FR EP
Scaevola crassifolia Labill. - EP YP SL KI SE
Scaevola daleana Blakely = *Scaevola parvifolia* ssp. *parvifolia*
Scaevola depauperata R.Br. - NW LE NU MU
Scaevola glabrata Carolin - LE
Scaevola humilis R.Br. - LE FR EA EP NL YP SL
Scaevola linearis R.Br. var. *confertifolia* J.Black - EP YP SL KI SE
Scaevola linearis R.Br. var. *linearis* - EP YP
Scaevola microcarpa Cav. = *Scaevola albida* var. *albida*
Scaevola microcarpa Cav. var. *pallida* (R.Br.)Benth. = *Scaevola pallida*
Scaevola myrtifolia (Vries)Krause - EP
Scaevola nitida sensu J.Black (1929) = *Scaevola angustata*
Scaevola ovalifolia R.Br. var. *glabra* R.Br. = *Scaevola glabrata*
Scaevola ovalifolia sensu J.Black (1957) = *Scaevola parvibarbata*
Scaevola pallida R.Br. = *Scaevola albida* var. *pallida*
Scaevola parvibarbata Carolin - LE GT FR EA
Scaevola parvifolia F.Muell. ex Benth. ssp. *parvifolia* - NW
Scaevola spinescens R.Br. - NW LE NU GT FR EA EP NL MU YP
Selliera radicans Cav. - EP MU SL KI SE
Velleia arguta R.Br. - NW NU FR EA EP NL MU YP SL SE
Velleia connata F.Muell. - NW LE NU FR EP NL MU SL
Velleia cynopotamica F.Muell. - EP
Velleia glabrata Carolin - NW
Velleia paradoxa R.Br. - NW FR EA EP NL MU YP SL SE

91.432 STYLIDIACEAE

- Candollea tepperiana* F.Muell. = *Stylidium tepperanum*
Levenhookia dubia Sonder - FR EP NL MU YP SL KI SE
Levenhookia pusilla R.Br. - SL SE
Stylidium beaugleholei J.H.Willis - SE
Stylidium brachyphyllum Sonder = *Stylidium inundatum*
Stylidium calcaratum R.Br. - EP YP SL KI SE
Stylidium calcaratum R.Br. var. *calcaratum* = *Stylidium calcaratum*
Stylidium calcaratum R.Br. var. *ecorne* F.Muell. ex Erickson & J.H.Willis =
Stylidium calcaratum
Stylidium ciliatum Lindley - not in S.Aust.
Stylidium despectum R.Br. - FR EP NL SL KI SE
Stylidium graminifolium Sw. ex Willd. - SL KI SE

91.432 STYLIDIACEAE (contd)

- Stylidium inundatum* R.Br. - SL KI SE
Stylidium majus (Smith) Druce = *Stylidium graminifolium*
Stylidium perpusillum Hook.f. - SL KI SE
Stylidium piliferum R.Br. var. *ciliatum* (Lindley) Mildbr. = *Stylidium ciliatum*
Stylidium tepperanum (F.Muell.) Mildbr. - KI
Ventenatia major Smith = *Stylidium graminifolium*

91.433 COMPOSITAE

- Absinthium canariense* Besser = *Artemisia canariensis*
Acanthocladium dockeri F.Muell. - MU
**Achillea millefolium* L. - EP NL MU SL SE
**Achillea tomentosa* L. - NL SL KI
Achnophora tatei F.Muell. - KI
**Acroptilon repens* (L.) DC. ssp. *repens* - FR EP NL MU SL
Actinobole uliginosum (A.Gray) H.Eichler - MU SL
Actites megalocarpa (Hook.f.) Lander = *Sonchus megalocarpus*
**Ageratina adenophora* (Sprengel) R.King & H.Robinson - MU SL
Ambrosia artemisiifolia sensu J.Black (1929) = *Ambrosia psilostachya*
**Ambrosia psilostachya* DC. - MU SL
**Ambrosia tenuifolia* Sprengel - NL SL
**Ammobium alatum* R.Br. - SL
Anacyclus australis Sieber ex Sprengel = *Cotula australis*
**Anacyclus radiatus* Loisel - SL
Angianthus brachypappus F.Muell. - LE GT FR EA EP
Angianthus brachypappus F.Muell. var. *conocephalus* J.Black = *Angianthus conocephalus*
Angianthus burkittii (Benth.) J.Black = *Gnephosis burkittii*
Angianthus conocephalus (J.Black) P.Short - NU
Angianthus eriocephalus (Hook.f. ex A.Gray) = *Angianthus preissianus*
Angianthus glabrata P.Short - GT EP
Angianthus phyllocalymmeus (F.Muell.) Druce = *Pleuropappus phyllocalymmeus*
Angianthus pleuropappus Benth. = *Pleuropappus phyllocalymmeus*
Angianthus preissianus (Steetz) Benth. - FR EP NL MU YP SL KI SE
Angianthus pusillus (Benth.) Benth. = *Chrysocoryne pusilla*
Angianthus strictus sensu J.Black (1957) = *Pogonolepis muelleriana*
Angianthus tenellus (F.Muell.) Benth. = *Chrysocoryne drummondii*
Angianthus tomentosus Wendl. - LE NU GT FR EA EP NL MU YP SL SE
Angianthus whitei J.Black = *Gnephosis burkittii*
**Anthemis arvensis* L. - SL SE
**Anthemis cotula* L. - SL SE
Anthemis nobilis L. = *Chamaemelum nobile*
Anthocerastes muelleri Sonder = *Toxanthes muelleri*
Apalochlamys billardieri DC. = *Apalochlamys spectabilis*
Apalochlamys spectabilis (Labill.) J.H.Willis - EP YP SL KI SE
**Arctotheca calendula* (L.) Levyns - NW LE GT FR EP NL MU YP SL KI SE
**Arctotheca populifolia* (P.Bergius) Norlindh - NU EP SE
Arctotis calendula L. = *Arctotheca calendula*
Arctotis calendulacea L. = *Arctotheca calendula*
Arctotis nivea (Nicholson) Lewin = *Arctotheca populifolia*
Arctotis populifolia P.Bergius = *Arctotheca populifolia*
**Arctotis stoechadifolia* P.Bergius - YP SL KI SE
**Argyranthemum frutescens* (L.) Webb ex Schultz-Bip.
 ssp. *foeniculaceum* (Pitard & Proust) C.Humphries - EP YP SL KI SE
**Argyranthemum frutescens* (L.) Webb ex Schultz-Bip. ssp. *frutescens* - EP MU YP SL SE
Argyranthemum frutescens (L.) Webb ex Schultz-Bip. var. *foeniculaceum* Pitard & Proust =
 Argyranthemum frutescens ssp. *foeniculaceum*
Arnopogon picroides (L.) Willd. = *Urospermum picroides*
**Artemisia absinthium* L. - ?SL
**Artemisia arborescens* L. - YP SL KI
**Artemisia canariensis* (Besser) Less. - YP
Artemisia matricarioides Less. = *Matricaria matricarioides*
Artemisia minima L. = *Centipeda minima*
Aster adenolasius F.Muell. = *Olearia adenolasia*
Aster axillaris (DC.) F.Muell. ex Benth. = *Olearia axillaris*
Aster calcareus (F.Muell. ex Benth.) F.Muell. = *Olearia calcarea*

91.433 COMPOSITAE (contd)

- Aster conocephalus* (F.Muell.) F.Muell. = *Cratystylis conocephala*
Aster exiguifolius F.Muell. = *Olearia exiguifolia*
Aster exilifolius F.Muell. = *Olearia brachyphylla*
Aster ferresii (F.Muell.) F.Muell. = *Olearia ferresii*
Aster florulentus F.Muell. = *Olearia floribunda* var. *floribunda*
Aster glandulosus Labill. = *Olearia glandulosa*
Aster glutescens (Sonder) F.Muell. = *Olearia passerinoides* ssp. *glutescens*
Aster huegelii F.Muell. = *Olearia ciliata* var. *ciliata*
Aster huegelii F.Muell. var. *squamifolia* F.Muell. = *Olearia ciliata* var. *squamifolia*
Aster lepidophyllus Pers. = *Olearia lepidophylla*
Aster magniflorus F.Muell. = *Olearia magniflora*
Aster megalodontus F.Muell. = *Olearia stuartii*
Aster microphyllus sensu Labill. (1806) = *Olearia lepidophylla*
Aster microphyllus sensu Tate (1890) = *Olearia lanuginosa*
Aster mitchellii F.Muell. = *Olearia subspicata*
Aster muelleri (Sonder) F.Muell. = *Olearia muelleri*
Aster pannosus (Hook.) F.Muell. = *Olearia pannosa* ssp. *pannosa*
Aster ramulosus Labill. = *Olearia ramulosa*
Aster sonderi F.Muell. = *Olearia grandiflora*
Aster squamatus sensu Ewart (1931) = *Aster subulatus*
Aster stuartii (F.Muell.) F.Muell. = *Olearia stuartii*
 * *Aster subulatus* Michaux - LE FR EA NL MU SL SE
Aster teretifolius (Sonder) F.Muell. = *Olearia teretifolia*
Aster tubuliflorus (Sonder & F.Muell. ex Sonder) F.Muell. = *Olearia tubuliflora*
Aster vernicorus F.Muell. = *Olearia passerinoides* ssp. *passerinoides*
Asteridea athrixioides (Sonder & F.Muell.) Kroner forma *athrixioides* -
 NW NU FR EA EP NL MU YP SL
Asteridea athrixioides (Sonder & F.Muell.) Kroner forma *horripes* (J.Black) D.Cooke - EP
Asteriscus spinosus (L.) Schultz-Bip. = *Pallenis spinosa*
Athrixia athrixioides (F.Muell. & Sonder ex Sonder) Druce
 var. *horripes* (J.Black) E.Robertson = *Asteridea athrixioides* forma *horripes*
Athrixia athrixioides (F.Muell. & Sonder ex Sonder) Druce =
Asteridea athrixioides forma *athrixioides*
Athrixia tenella Benth. = *Asteridea athrixioides* forma *athrixioides*
Athrixia tenella Benth. var. *horripes* J.Black = *Asteridea athrixioides* forma *horripes*
Barkhausia haenseleri Boiss. ex DC. = *Crepis vesicaria* ssp. *haenseleri*
Basedowia helichrysoidea E.Pritzel = *Basedowia tenerrima*
Basedowia tenerrima (F.Muell. & Tate) J.Black - NW
Bellis aculeata Labill. = *Brachycome aculeata*
Bellis ciliaris Labill. = *Brachycome ciliaris* var. *ciliaris*
Bellis dimorphocarpa G.L.Davis = *Brachycome ciliaris* var. *ciliaris*
Bellis drummondii Walp. = *Brachycome ciliaris* var. *ciliaris*
Bellis graminea Labill. = *Brachycome graminea*
Bellis stipitata Labill. = *Lagenifera stipitata* var. *stipitata*
 * *Berkheya rigida* (Thunb.) Ewart, Jean White & B.Rees - EP
 * *Bidens pilosa* L. - NW EP MU SL
Bidens tenuifolia Labill. = *Glossogyne tannensis*
Blennospora drummondii A.Gray - EP NL MU YP SL SE
Brachycome aculeata (Labill.) Less. - not in S.Aust.
Brachycome aculeata sensu J.Black (1929) = *Brachycome cuneifolia*
Brachycome angustifolia Cunn. ex DC. var. *angustifolia* - SL SE
Brachycome basaltica F.Muell. var. *gracilis* Benth. - LE ?EP MU SE
Brachycome blackii G.L.Davis - NW
Brachycome breviscapis C.Carter - EP
Brachycome calocarpa F.Muell. = *Brachycome dentata*
Brachycome campylocarpa J.Black - LE FR EA
Brachycome cardiocarpa F.Muell. ex Benth. - MU SE
Brachycome chrysoglossa F.Muell. = *Brachycome dentata*
Brachycome ciliaris (Labill.) Less. var. *brachyglossa* Gauba - EA NL MU
Brachycome ciliaris (Labill.) Less. var. *ciliaris* -
 NW LE NU GT FR EA EP NL MU YP SL SE
Brachycome ciliaris (Labill.) Less. var. *glandulosa* Benth. =
Brachycome ciliaris var. *lanuginosa*
Brachycome ciliaris (Labill.) Less. var. *grandiflora* Benth. = *Brachycome ciliaris* var. *ciliaris*

91.433 COMPOSITAE (contd)*Brachycome ciliaris* (Labill.) Less. var. *lanuginosa* (Steetz) Benth. -

NW LE NU GT FR EA EP NL MU YP SL SE

Brachycome ciliaris (Labill.) Less. var. *lyrifolia* (J.Black) G.L.Davis - LE FR*Brachycome ciliaris* (Labill.) Less. var. *subdissecta* Benth. = *Brachycome ciliaris* var. *ciliaris**Brachycome ciliaris* (Labill.) Less. var. *subintegrifolia* G.L.Davis - LE NL MU*Brachycome collina* (Sonder) Benth. = *Brachycome perpusilla**Brachycome coongiensis* Munir - LE*Brachycome cuneifolia* Tate - EP YP SL KI SE*Brachycome debilis* Sonder - EA SL SE*Brachycome decipiens* Hook.f. - SE*Brachycome dentata* Gaudich. - FR EA NL MU SE*Brachycome dichromosomatica* C.Carter var. *dichromosomatica* - LE GT FR EP*Brachycome dimorphocarpa* G.L.Davis = *Brachycome ciliaris* var. *ciliaris**Brachycome diversifolia* (Graham ex Hook.) Fischer & C.Meyer var. *diversifolia* - SL SE*Brachycome eriogona* (J.Black) G.L.Davis - LE EA*Brachycome exilis* Sonder - ?LE GT FR EP MU YP SL KI SE*Brachycome goniocarpa* Sonder & F.Muell. ex Sonder - EA EP NL MU YP SL KI SE*Brachycome goniocarpa* Sonder & F.Muell. ex Sonder var. *eriogona* J.Black =*Brachycome eriogona**Brachycome graminea* (Labill.) F.Muell. - MU SL SE*Brachycome heterodonta* DC. = *Brachycome dentata**Brachycome iberidifolia* Benth. - NW LE GT FR EA EP*Brachycome iberidifolia* Benth. var. *glandulifera* J.Black = *Brachycome iberidifolia**Brachycome lanuginosa* Steetz = *Brachycome ciliaris* var. *lanuginosa**Brachycome leptocarpa* F.Muell. - LE FR EP NL MU YP SL SE*Brachycome linearifolia* DC. = *Brachycome angustifolia* var. *angustifolia**Brachycome lineariloba* (DC.) Druce - LE NU GT FR EA EP NL MU YP SL KI SE*Brachycome lineariloba* sensu J.Black (1957), partly =*Brachycome dichromosomatica* var. *dichromosomatica**Brachycome lissocarpa* J.Black = *Brachycome parvula* var. *lissocarpa**Brachycome lyrifolia* J.Black = *Brachycome ciliaris* var. *lyrifolia**Brachycome marginata* Benth. = *Brachycome dentata**Brachycome melanocarpa* Sonder & F.Muell. ex Sonder - LE FR MU*Brachycome muelleri* Sonder - EP ?SL*Brachycome neglecta* J.Black = *Brachycome exilis**Brachycome pachyptera* Turcz. = *Brachycome lineariloba**Brachycome parvula* Hook.f. var. *lissocarpa* (J.Black) G.L.Davis - MU SL SE*Brachycome parvula* Hook.f. var. *parvula* - SE*Brachycome perpusilla* (Steetz) J.Black - FR EP NL MU YP SL SE*Brachycome perpusilla* (Steetz) J.Black var. *perpusilla* = *Brachycome perpusilla**Brachycome perpusilla* (Steetz) J.Black var. *tenella* (Turcz.) G.L.Davis =*Brachycome perpusilla**Brachycome readeri* G.L.Davis - SE*Brachycome tatei* J.Black - NU*Brachycome tenella* Turcz. = *Brachycome perpusilla**Brachycome tesquorum* J.Black - NW LE*Brachycome trachycarpa* F.Muell. - NU GT FR EP NL MU SL SE*Brachycome uliginosa* Davis - KI SE*Brachycome xanthocarpa* D.Cooke - EP*Bupthalmum spinosum* L. = *Pallenis spinosa**Cacalia odorata* Desf. = *Senecio odoratus* var. *odoratus**Calea spectabilis* Labill. = *Apalochlamys spectabilis** *Calendula arvensis* L. - LE FR EA EP NL MU SL*Calendula fruticosa* L. = *Osteospermum fruticosum** *Calendula officinalis* L. - SL SE*Calendula pluvialis* L. = *Dimorphotheca pluvialis**Calocephalus brownii* (Cass.) F.Muell. - NU EP YP SL KI SE*Calocephalus chrysanthus* Schldl. = *Craspedia chrysantha**Calocephalus citreus* Less. - FR EP NL MU YP SL SE*Calocephalus ditrichii* F.Muell. = *Calocephalus platycephalus**Calocephalus drummondii* (A.Gray) Benth. = *Blennospora drummondii**Calocephalus gnaphalioides* Hook. = *Helipterum moschatum**Calocephalus knappii* (F.Muell.) Ewart & Jean White - NW LE GT*Calocephalus lacteus* Less. - SL SE

91.433 COMPOSITAE (contd)

- Calocephalus multiflorus* sensu J.Black (1957) = *Calocephalus platycephalus*
Calocephalus platycephalus (F.Muell.) Benth. - NW LE GT FR EA
Calocephalus sonderi F.Muell. - MU
Calotis ancycrocarpa J.Black - LE
Calotis brevibradiata (Ising) G.L.Davis - NU
Calotis cuneifolia R.Br. - MU SL
Calotis cymbacantha F.Muell. - NW LE NU GT FR EA EP MU SL
Calotis erinacea Steetz - NW LE NU GT FR EA EP NL MU SL
Calotis erinacea Steetz var. *bicristata* J.Black = *Calotis erinacea*
Calotis hispidula (F.Muell.) F.Muell. - NW LE NU GT FR EA EP NL MU YP SL
Calotis kempei F.Muell. - NW LE GT
Calotis lappulacea Benth. - LE GT FR MU SL
Calotis latiuscula F.Muell. & Tate - NW LE GT FR EA
Calotis microcephala F.Muell. ex Benth. = *Calotis porphyroglossa*
Calotis microphylla Benth. = *Calotis lappulacea*
Calotis multicaulis (Turcz.) Druce - NW LE NU GT EA EP
Calotis multicaulis (Turcz.) Druce var. *brevibradiata* Ising = *Calotis brevibradiata*
Calotis multicaulis sensu G.L.Davis (1952), partly = *Calotis plumulifera*
Calotis plumulifera F.Muell. - NW LE GT FR EA MU
Calotis porphyroglossa F.Muell. ex Benth. - LE EA NL
Calotis scabiosifolia Sonder & F.Muell. ex Sonder var. *elongata* F.Muell. ex Benth. =
Calotis scapigera
Calotis scabiosifolia Sonder & F.Muell. ex Sonder var. *scabiosifolia* -
 LE FR NL MU SL SE
Calotis scapigera Hook. - FR MU SL
Carduus acarna L. = *Picnomon acarna*
Carduus lanceolatus L. = *Cirsium vulgare*
Carduus marianus L. = *Silybum marianum*
 * *Carduus nutans* L. - FR
Carduus pycnocephalus L. - SL SE
 * *Carduus tenuiflorus* Curtis - FR EP NL MU YP SL KI SE
Carduus vulgaris Savi = *Cirsium vulgare*
 * *Carthamus glaucus* M.Bieb. - NL KI SE
 * *Carthamus lanatus* L. - LE FR EA EP NL MU YP SL SE
Cassinia aculeata (Labill.) R.Br. var. *laevis* (R.Br.) J.Black = *Cassinia laevis*
Cassinia arcuata R.Br. - NW FR EP NL MU YP SL
Cassinia aurea R.Br. = *Angianthus tomentosus*
Cassinia complanata J.Black = *Cassinia uncata*
Cassinia glauca (Labill.) Sprengel = *Craspedia glauca*
Cassinia laevis R.Br. - NW GT FR EA EP NL MU SL SE
Cassinia punctulata (F.Muell.) F.Muell. & Tate ex Tate = *Haeckeria punctulata*
Cassinia spectabilis (Labill.) R.Br. = *Apalochlamys spectabilis*
Cassinia uncata Cunn. ex DC. - FR EP NL MU YP SL KI SE
 * *Centaurea aspera* L. - SL
 * *Centaurea calcitrapa* L. - NL MU YP SL SE
 * *Centaurea cineraria* L. - YP SL
Centaurea crupina L. = *Crupina vulgaris*
 * *Centaurea eriophora* L. - MU
 * *Centaurea melitensis* L. - LE NU GT FR EA EP NL MU YP SL KI SE
 * *Centaurea nigra* L. - SL
 * *Centaurea nigrescens* Willd. ssp. *nigrescens* - SE
 * *Centaurea paniculata* L. ssp. *paniculata* - SL
Centaurea picris Pallas ex Willd. = *Acroptilon repens* ssp. *repens*
Centaurea repens L. = *Acroptilon repens* ssp. *repens*
 * *Centaurea solstitialis* L. - NL MU YP SL
Centipeda cunninghamii (DC.) A.Braun & Asch. -
 LE GT FR EA EP NL MU YP SL KI SE
Centipeda minima (L.) A.Braun & Asch. - LE MU SL KI SE
Centipeda orbicularis sensu Tate (1890) = *Centipeda minima*
Centipeda thespidioides F.Muell. - NW LE GT FR EA EP MU
Cephalopterum drummondii A.Gray - NW NU GT
Ceratogyne obionoides Turcz. - GT EP
 * *Chamaemelum nobile* (L.) All. - SL
Chamomilla suaveolens (Pursh) Rydb. = *Matricaria matricarioides*

91.433 COMPOSITAE (contd)

- Cheiriloma hispidulum* F.Muell. = *Calotis hispidula*
 **Chondrilla juncea* L. - EP NL MU YP SL SE
 **Chrysanthemoides monilifera* (L.) Norlindh - FR EP MU YP SL SE
Chrysanthemum anethifolium sensu J.Black (1957) =
Argyranthemum frutescens ssp. *foeniculaceum*
 **Chrysanthemum coronarium* L. - MU SL
Chrysanthemum foeniculaceum sensu H.Eichler (1965) =
Argyranthemum frutescens ssp. *foeniculaceum*
Chrysanthemum frutescens L. = *Argyranthemum frutescens* ssp. *frutescens*
Chrysanthemum incanum Thunb. = *Pentzia incana*
Chrysanthemum leucanthemum L. = *Leucanthemum vulgare*
Chrysanthemum maximum Ramond = *Leucanthemum maximum*
Chrysanthemum parthenium L. = *Tanacetum parthenium*
Chrysanthemum vulgare (L.) Bernh. = *Tanacetum vulgare*
Chrysocoma squamata Labill. = *Leptorhynchus squamatus*
Chrysocoryne angianthoides F.Muell. = *Chrysocoryne pusilla*
Chrysocoryne drummondii A.Gray - NU EP SE
Chrysocoryne pusilla (Benth.) Endl. - NW LE NU GT FR EA EP MU
Chrysocoryne tenella F.Muell. = *Chrysocoryne drummondii*
Chthonocephalus pseudevax Steetz - NW NU GT FR EP MU
 **Cichorium intybus* L. - NL MU SL KI SE
Cirsium acarna (L.) Moench = *Picnomon acarna*
 **Cirsium arvense* (L.) Scop. - SE
Cirsium lanceolatum (L.) Scop. = *Cirsium vulgare*
 **Cirsium vulgare* (Savi) Ten. - FR EA EP NL MU YP SL SE
Cnicus acarna (L.) L. = *Picnomon acarna*
 **Conyza albida* Willd. ex Sprengel - MU SL SE
Conyza ambigua DC. = *Conyza bonariensis*
 **Conyza bilboana* Remy - SL
 **Conyza bonariensis* (L.) Cronq. - NW FR EA EP NL MU YP SL SE
Conyza bonariensis - GT
 **Conyza canadensis* (L.) Cronq. var. *canadensis* - FR NL SL SE
Conyza floribunda sensu N.Burb. & M.Gray (1970) = *Conyza albida*
Cotula australis (Sieber ex Sprengel) Hook.f. - FR EP NL MU YP SL KI SE
 **Cotula bipinnata* Thunb. - MU SL KI SE
 **Cotula coronopifolia* L. - LE FR EP NL MU YP SL KI SE
Cotula integrifolia Hook.f. = *Cotula coronopifolia*
Cotula minuta Forster f. = *Centipeda minima*
Cotula reptans (Benth.) Benth. - MU SE
Craspedia alpina Backhouse ex Hook.f. - SE
Craspedia chrysantha (Schldl.) Benth. - LE FR EA MU
Craspedia glauca (Labill.) Sprengel - FR EP NL MU YP SL KI SE
Craspedia globosa (Bauer ex Benth.) Benth. - LE FR NL MU SE
Craspedia pleiocephala F.Muell. - NW LE NU GT FR EA EP MU
Craspedia richia Cass. = *Craspedia glauca*
Craspedia uniflora sensu J.Black (1929) = *Craspedia glauca*
Cratystylis conocephala (F.Muell.) S.Moore - NW NU GT EA EP NL MU YP
Crepis barbata L. = *Tolpis barbata*
 **Crepis biennis* L. - SE
 **Crepis capillaris* (L.) Wallr. - SL SE
 **Crepis dioscoridis* L. - SL
 **Crepis foetida* L. ssp. *foetida* - NL YP SL
 **Crepis pusilla* (Sommier) Merxm. - EP
Crepis taraxacifolia Thuill. = *Crepis vesicaria* ssp. *haenseleri*
 **Crepis vesicaria* L. ssp. *haenseleri* (Boiss. ex DC.) Sell. - KI SE
Crepis vesicaria L. var. *traxacifolia* (Thuill.) Thell. = *Crepis vesicaria* ssp. *haenseleri*
Crepis virens L. = *Crepis capillaris*
Crossolepis pusilla Benth. = *Chrysocoryne pusilla*
 **Crupina vulgaris* Cass. - SL
Cryptostemma calendula (L.) Druce = *Arctotheca calendula*
Cryptostemma calendulaceum (L.) R.Br. = *Arctotheca calendula*
Cryptostemma niveum Nicholson = *Arctotheca populifolia*
Cymbonotus lawsonianus sensu J.Black (1929) = *Cymbonotus preissianus*
Cymbonotus preissianus Steetz - FR EP NL YP SL KI SE

91.433 COMPOSITAE (contd)

- **Cynara cardunculus* L. - EA EP NL YP SL SE
Dichromochlamys dentatifolius (F.Muell.)Dunlop - NW LE FR
Dimorphocoma minutula F.Muell. & Tate - LE GT FR EA
Dimorpholepis australis A.Gray = *Triptilodiscus pygmaeus*
Dimorphotheca annua Less. = *Dimorphotheca pluvialis*
Dimorphotheca aurantiaca Hort. = *Dimorphotheca sinuata*
Dimorphotheca fruticosa (L.)Less. = *Osteospermum fruticosum*
**Dimorphotheca pluvialis* (L.)Moench - EP SL SE
**Dimorphotheca sinuata* DC. - EP NL
Diotosperma drummondii A.Gray = *Ceratogyne obionoides*
Diplopappus australasicus Turcz. = *Vittadinia australasica* var. *australasica*
Diplopappus passerinoides Turcz. = *Olearia passerinoides* ssp. *glutescens*
**Dittrichia graveolens* (L.)Greuter - GT FR EA EP NL MU YP SL SE
Doratolepis tetrachaeta Schldl. = *Leptorhynchus tetrachaetus*
Duttonia sessiliceps F.Muell. = *Triptilodiscus pygmaeus*
Eclipta alatocarpa Melville - LE
Eclipta platyglossa F.Muell. - MU SL SE
Elachanthus glaber Paul G.Wilson - EA EP
Elachanthus pusillus F.Muell. - LE NU FR EA EP NL MU YP SL
Elachopappus rudallii F.Muell. = *Myriocephalus rudallii*
Elachothamnos cunninghamii DC. = *Minuria cunninghamii*
Elichrysum albicans Cunn. = *Helipterum albicans*
Elichrysum incanum Hook. = *Helipterum incanum*
Elichrysum lucidum Henckel = *Helichrysum bracteatum*
Embergeria megalocarpa (Hook.f.)Boulos = *Sonchus megalocarpus*
Epaltes australis Less. - LE EA MU SL
Epaltes cunninghamii (Hook.)Benth. - NW LE FR EA MU
Epaltes tatei F.Muell. - EP MU YP SE
Erechtites arguta (Rich.)DC. var. *dissecta* Benth. = *Senecio hispidulus* var. *dissectus*
Erechtites arguta sensu J.Black (1929), partly = *Senecio hispidulus* var. *hispidulus*
Erechtites glossantha Sonder = *Senecio glossanthus*
Erechtites hispidula (Rich.)DC. = *Senecio hispidulus* var. *hispidulus*
Erechtites hispidula sensu Benth. (1867), partly = *Senecio macrocarpus*
Erechtites hispidula sensu Benth. (1867), partly = *Senecio squarrosus*
Erechtites hispidula sensu J.Black (1929), partly = *Senecio macrocarpus*
Erechtites lacerata F.Muell. = *Senecio laceratus*
Erechtites mixta sensu Benth. (1867) = *Senecio runcinifolius*
Erechtites picridioides sensu Sonder & F.Muell. (1853) = *Senecio runcinifolius*
Erechtites prenanthoides DC. var. *picridioides* (Turcz.)Benth. = *Senecio picridioides*
Erechtites prenanthoides sensu J.Black (1929) = *Senecio biserratus*
Erechtites quadridentata (Labill.)DC. = *Senecio quadridentatus*
Erechtites richardiana DC. = *Senecio squarrosus*
Erechtites sonchoides sensu DC. (1838) = *Senecio biserratus*
Erigeron bonariense L. = *Conyza bonariensis*
Erigeron canadense L. = *Conyza canadensis* var. *canadensis*
Erigeron crispus Pourret = *Conyza bonariensis*
Erigeron graveolens L. = *Dittrichia graveolens*
**Erigeron karvinskianus* DC. - SL
Erigeron liatroides Turcz. = *Streptoglossa liatroides*
Erigeron linifolium Willd. = *Conyza bonariensis*
Erigeron mucronatus DC. = *Erigeron karvinskianus*
Erigeron sessilifolius F.Muell. - LE
Eriochlamys behrii Sonder & F.Muell. ex Sonder - NW LE GT FR EA EP NL MU YP KI
Eriochlamys knappii F.Muell. = *Calocephalus knappii*
Erodiophyllum elderi F.Muell. - NU FR EA EP MU
Ethulia cunninghamii Hook. = *Epaltes cunninghamii*
Ethuliopsis dioica F.Muell. = *Epaltes cunninghamii*
Euchiton forsteri Cass. = *Gnaphalium involucreatum*
Euchiton pulchellus Cass. = *Gnaphalium involucreatum*
Eupatorium adenophorum Sprengel = *Ageratina adenophora*
Eupatorium ferrugineum Labill. = *Helichrysum dendroideum*
Eurybia erubescens DC. = *Olearia erubescens*
Eurybia axillaris DC. = *Olearia axillaris*
Eurybia brachyphylla F.Muell. ex Sonder = *Olearia brachyphylla*

91.433 COMPOSITAE (contd)

- Eurybia cardiophylla* F.Muell. = *Olearia pannosa* ssp. *cardiophylla*
Eurybia ciliata Benth. = *Olearia ciliata* var. *ciliata*
Eurybia conocephala F.Muell. = *Cratystylis conocephala*
Eurybia decurrens DC. = *Olearia decurrens*
Eurybia ferresii F.Muell. = *Olearia ferresii*
Eurybia floribunda Hook.f. = *Olearia floribunda* var. *floribunda*
Eurybia glutescens Sonder = *Olearia passerinoides* ssp. *glutescens*
Eurybia glutinosa Lindley = *Olearia glutinosa*
Eurybia muelleri Sonder = *Olearia muelleri*
Eurybia pannosa (Hook.)F.Muell. = *Olearia pannosa* ssp. *pannosa*
Eurybia picridifolia F.Muell. = *Olearia picridifolia*
Eurybia pimeleoides DC. = *Olearia pimeleoides* ssp. *pimeleoides*
Eurybia stuartii F.Muell. = *Olearia stuartii*
Eurybia subspicata Hook. = *Olearia subspicata*
Eurybia teretifolia Sonder = *Olearia teretifolia*
Eurybia tubuliflora Sonder & F.Muell. ex Sonder = *Olearia tubuliflora*
Eurybiopsis gracilis Hook.f. = *Vittadinia gracilis*
Eurybiopsis hookeri Sonder = *Vittadinia blackii*
Eurybiopsis intricata F.Muell. = *Minuria cunninghamii*
**Euryops abrotanifolius* (L.)DC. - SL
**Evax pygmaea* (L.)Brot. - YP SE
Eyrea rubelliflora F.Muell. = *Pluchea rubelliflora*
Filago gallica L. = *Logfia gallica*
Filago pygmaea L. = *Evax pygmaea*
**Filago pyramidata* L. - YP
Flaveria australasica Hook. - NW LE GT FR EA
**Gaillardia aristata* Pursh - SE
**Galinsoga parviflora* Cav. - EP SL
**Gazania linearis* (Thunb.)Druce - MU YP SL
Gazania longiscapa DC. = *Gazania linearis*
**Gazania pavonia* R.Br. - not in S.Aust.
**Gazania regens* Moench - SL
Glossogyne tannensis (Forster f.)Garnock-Jones - NW LE FR
Glossogyne tenuifolia (Labill.)Cass. = *Glossogyne tannensis*
Gnaphalium apiculatum Labill. = *Helichrysum apiculatum* var. *apiculatum*
**Gnaphalium auidax* D.Drury - MU SL
Gnaphalium calviceps sensu Paul G. Wilson (1965) = *Gnaphalium subfalcatum*
Gnaphalium candidissimum Lam. = *Vellereophyton dealbatum*
Gnaphalium cephaloideum Willd. = *Gnaphalium involucreatum*
**Gnaphalium coarctatum* Willd. - SL
Gnaphalium collinum Labill. = *Gnaphalium gymnocephalum*
Gnaphalium dealbatum Thunb. = *Vellereophyton dealbatum*
Gnaphalium diamantinense Paul G. Wilson - LE
Gnaphalium ensifer D.Drury - NL SL KI SE
Gnaphalium gymnocephalum DC. - FR EP NL SL SE
Gnaphalium indicum sensu J.Black (1957) = *Gnaphalium polycaulon*
Gnaphalium indutum Hook.f. - LE FR EP NL MU YP SL KI SE
Gnaphalium involucreatum Forster f. - FR EP MU SL KI SE
Gnaphalium involucreatum sensu Paul G. Wilson (1965) = *Gnaphalium sphaericum*
Gnaphalium japonicum Thunb. var. *collinum* (Labill.)Maiden & Betche =
 Gnaphalium gymnocephalum
Gnaphalium japonicum sensu J.Black (1929) = *Gnaphalium sphaericum*
Gnaphalium japonicum sensu Paul G. Wilson (1965), partly = *Gnaphalium ensifer*
Gnaphalium japonicum sensu Paul G. Wilson (1965), partly =
 Gnaphalium gymnocephalum
Gnaphalium japonicum sensu Paul G. Wilson (1965), partly = *Gnaphalium involucreatum*
Gnaphalium luteoalbum L. = *Pseudognaphalium luteoalbum*
Gnaphalium moschatum Cunn. ex DC. = *Helipterum moschatum*
Gnaphalium multicaule Willd. = *Gnaphalium polycaulon*
**Gnaphalium polycaulon* Pers. - LE EA MU
Gnaphalium purpureum sensu Paul G. Wilson (1965) = *Gnaphalium spicatum*
Gnaphalium semipapposum Labill. = *Helichrysum semipapposum*
Gnaphalium sphaericum Willd. - NW LE FR EA EP NL MU YP SL KI SE
**Gnaphalium spicatum* Lam. - MU SL SE

91.433 COMPOSITAE (contd)

Gnaphalium subfalcatum* Cabrera - SL SE*Gnaphalodes uliginosum* A.Gray = *Actinobole uliginosumGnephosis arachnoidea* Turcz. - NW LE GT FR EA EP*Gnephosis arachnoidea* Turcz. var. *foliata* (Sonder) Benth. = *Gnephosis arachnoidea**Gnephosis burkittii* Benth. - LE GT FR EA EP MU*Gnephosis codonopappa* F.Muell. = *Gnephosis skirrophora**Gnephosis cyathopappa* Benth. = *Gnephosis arachnoidea**Gnephosis eriocarpa* (F.Muell.) Benth. - NW LE GT FR EA*Gnephosis foliata* (Sonder) H.Eichler = *Gnephosis arachnoidea**Gnephosis gnephosioides* (F.Muell.) Druce = *Gnephosis arachnoidea**Gnephosis rotundifolia* Diels = *Stuartina muelleri**Gnephosis skirrophora* (Sonder & F.Muell. ex Sonder) Benth. -
NW LE NU GT FR EA NL MU*Goniopogon multicaule* Turcz. = *Calotis multicaulis**Gorteria linearis* Thunb. = *Gazania linearis**Gorteria rigens* L. = *Gazania regens**Gratwickia monochaeta* F.Muell. = *Helichrysum monochaetum**Griffithia helipteroides* J.Black = *Helipterum oppositifolium**Gymnostyles anthemifolia* A.L.Juss. = *Soliva anthemifolia**Gymnostyles pterosperma* A.L.Juss. = *Soliva pterosperma**Haeckeria cassiniaeformis* F.Muell. - EP NL*Haeckeria pholidota* (F.Muell.) J.H.Willis - MU SE*Haeckeria punctulata* (F.Muell.) J.H.Willis - FR EA EP*Hedypnois cretica* (L.) Dum.-Cours. = *Hedypnois rhagadioloides**Hedypnois cretica* sensu Willd. (1803) = *Hedypnois rhagadioloides**Hedypnois polymorpha* DC. = *Hedypnois rhagadioloides**Hedypnois rhagadioloides* (L.) F.W.Schmidt - LE NU GT FR EP NL MU YP SL KI SE*Hedypnois rhagadioloides* (L.) Willd. = *Hedypnois rhagadioloides***Helianthus annuus* L. - GT EP NL MU YP*Helichrysum adenophorum* F.Muell. - MU KI*Helichrysum adnatum* (DC.) Benth. = *Helichrysum bilobum* ssp. *bilobum**Helichrysum adnatum* (DC.) Benth. var. *scabrum* (F.Muell.) Benth. =*Helichrysum bilobum* ssp. *scabrum**Helichrysum albicans* sensu J.Black (1927), partly = *Helipterum molle**Helichrysum ambiguum* Turcz. ssp. *ambiguum* - NW LE NU GT FR EA EP*Helichrysum ambiguum* Turcz. ssp. *vinaceum* Haegi - NW*Helichrysum ambiguum* Turcz. var. *paucisetum* J.Black = *Helichrysum eremaeum**Helichrysum anthemoides* Sieber ex Sprengel = *Helipterum anthemoides**Helichrysum apiculatum* (Labill.) D.Don var. *apiculatum* -

NW LE NU GT FR EA EP NL MU YP SL KI SE

Helichrysum apiculatum (Labill.) D.Don var. *minor* Benth. =*Helichrysum apiculatum* var. *apiculatum**Helichrysum apiculatum* (Labill.) D.Don var. *occidentale* Benth. - KI SE*Helichrysum apiculatum* (Labill.) D.Don var. *racemosum* J.Black =*Helichrysum apiculatum* var. *apiculatum**Helichrysum ayersii* F.Muell. - NW LE*Helichrysum basedowii* J.Black = *Leptorhynchos baileyi**Helichrysum bilobum* Wakef. ssp. *bilobum* - FR EP NL MU YP SL KI SE*Helichrysum bilobum* Wakef. ssp. *scabrum* (F.Muell.) N.Burb. - FR EA*Helichrysum bilobum* Wakef. var. *scabrum* (J.Black) E.Robertson =*Helichrysum bilobum* ssp. *scabrum**Helichrysum blandowskianum* Steetz ex Sonder - FR MU SL SE*Helichrysum bracteatum* (Vent.) Andrews - NW LE NU FR EA EP NL MU YP SL KI*Helichrysum cassinianum* Gaudich. - NW LE NU GT*Helichrysum catadromum* Wakef. - EP MU SL SE*Helichrysum cinereum* sensu F.Muell. ex Benth., partly = *Helichrysum paraliu**Helichrysum cotula* Benth. = *Helipterum cotula**Helichrysum davenportii* F.Muell. - NW LE NU GT EP*Helichrysum decurrens* (F.Muell.) F.Muell. = *Helichrysum catadromum**Helichrysum decurrens* (F.Muell.) F.Muell. var. *scabrum* (F.Muell.) J.Black =*Helichrysum bilobum* ssp. *scabrum**Helichrysum dendroideum* Wakef. - SE*Helichrysum dockeri* (F.Muell.) Benth. = *Acanthocladium dockeri**Helichrysum eremaeum* Haegi - NW LE NU EP

91.433 COMPOSITAE (contd)

- Helichrysum ferrugineum* (Labill.) Less. ex Steudel = *Helichrysum dendroideum*
Helichrysum gunnii (Hook.f.) Benth. ssp. *paralium* N.Burb. = *Helichrysum paralium*
Helichrysum humboldtianum Gaudich. = *Helipterum humboldtianum*
Helichrysum indicum sensu Jessop (1984) = *Gnaphalium polycaulon*
Helichrysum lawrencella F.Muell. var. *davenportii* (F.Muell.) Benth. =
Helichrysum davenportii
Helichrysum leptolepis DC. = *Ixiolaena leptolepis*
Helichrysum leucopsidium DC. - NU FR EP NL MU YP SL KI SE
Helichrysum mellorianum J.Black = *Helichrysum monochaetum*
Helichrysum molle Cunn. ex DC. = *Helipterum molle*
Helichrysum monochaetum (F.Muell.) H.Eichler - LE NU GT EP
Helichrysum obtusifolium F.Muell. & Sonder ex Sonder - EP MU YP SL KI SE
Helichrysum odorum DC. var. *arachnoideum* Labill. =
Helichrysum apiculatum var. *apiculatum*
Helichrysum odorum DC. var. *odorum* = *Helichrysum apiculatum* var. *apiculatum*
Helichrysum paralium (N.Burb.) W.M.Curtis - SL SE
Helichrysum pholidotum (F.Muell.) F.Muell. ex Benth. = *Haeckeria pholidota*
Helichrysum podolepidium F.Muell. - NW LE GT FR EA
Helichrysum monochaetum (F.Muell.) F.Muell. - NW LE NU GT FR EA
Helichrysum ramosissimum Hook. = *Helichrysum apiculatum* var. *apiculatum*
Helichrysum retusum (Sonder & F.Muell. ex Sonder) F.Muell. =
Helichrysum bilobum ssp. *bilobum*
Helichrysum roseum (Lindley) Druce var. *davenportii* (F.Muell.) J.Black =
Helichrysum davenportii
Helichrysum rutidolepis DC. - MU SL
Helichrysum scorpioides Labill. - YP SL SE
Helichrysum semiamplexicaule Domin = *Helichrysum apiculatum* var. *apiculatum*
Helichrysum semicalvum F.Muell. = *Helichrysum ambiguum* ssp. *ambiguum*
Helichrysum semifertile F.Muell. - LE GT FR EA EP NL
Helichrysum semipapposum (Labill.) DC. - NW NU FR EA EP NL MU YP SL KI SE
Helichrysum semipapposum (Labill.) DC. var. *brevifolium* (Sonder) Maiden & Betche =
Helichrysum semipapposum
Helichrysum squarulosum DC. var. *brevifolium* Sonder = *Helichrysum semipapposum*
Helichrysum stipitatum F.Muell. = *Helipterum stipitatum*
Helichrysum tephrodes Sweet = *Helichrysum obtusifolium*
Helichrysum tepperi F.Muell. = *Podolepis tepperi*
Helichrysum thomsonii F.Muell. - NW
Helipterum albicans (Cunn.) DC. - not in S.Aust.
Helipterum albicans sensu J.Black (1957) = *Helipterum saxatile*
Helipterum anthemoides (Sieber ex Spring) DC. - SL
Helipterum australe (A.Gray) Druce = *Triptilodiscus pygmaeus*
Helipterum charsleyae F.Muell. - NW LE GT
Helipterum chlorocephalum (Turcz.) Benth. - NW NU
Helipterum corymbiflorum Schldl. - LE GT FR EA EP NL MU YP SL SE
Helipterum corymbiflorum Schldl. var. *microglossum* F.Muell. = *Helipterum microglossum*
Helipterum cotula (Benth.) DC. - ?SE
Helipterum demissum (A.Gray) Druce - GT FR EP NL MU YP SL KI SE
Helipterum dimorpholepis Benth. = *Triptilodiscus pygmaeus*
Helipterum exiguum F.Muell. = *Helipterum demissum*
Helipterum fitzgibbonii F.Muell. - NW LE NU GT FR MU
Helipterum floribundum DC. - NW LE NU GT FR EA EP NL MU
Helipterum floribundum DC. var. *stuartianum* (Sonder & F.Muell. ex Sonder) Benth. =
Helipterum stuartianum
Helipterum haigii F.Muell. = *Helipterum humboldtianum*
Helipterum humboldtianum (Gaudich.) DC. - NW NU GT EP
Helipterum hyalospermum F.Muell. ex Benth. - FR EA EP NL MU YP SL SE
Helipterum incanum (Hook.) DC. - not in S.Aust.
Helipterum incanum sensu F.Muell. (1882) = *Helipterum saxatile*
Helipterum jessenii F.Muell. - LE GT FR EA EP NL MU YP SL
Helipterum laeve (A.Gray) Benth. - GT FR EP NL MU YP SL
Helipterum microglossum (F.Muell. ex Benth.) Maiden & Betche - NW LE GT FR EA EP
Helipterum molle (Cunn. ex DC.) Paul G.Wilson - LE GT FR EA EP NL
Helipterum moschatum (Cunn. ex DC.) Benth. - NW LE NU GT FR EA EP MU SL
Helipterum oppositifolium S.Moore - EP

91.433 COMPOSITAE (contd)

- Helipterum polygalifolium* DC. - LE GT FR EA EP MU SL
Helipterum pygmaeum (DC.) Benth. - NW LE NU GT FR EA EP NL MU YP SL SE
Helipterum roseum (Hook.) Benth. var. *patens* (Ewart) J. Black =
Helipterum chlorocephalum
Helipterum saxatile Paul G. Wilson - NW LE NU
Helipterum stipitatum (F. Muell.) F. Muell. ex Benth. - NW LE NU GT EP
Helipterum stoveae D. Cooke - LE
Helipterum strictum (Lindley) Benth. - NW LE NU GT FR EA EP MU
Helipterum stuartianum Sonder & F. Muell. ex Sonder -
 NW LE NU GT FR EA EP NL MU YP
Helipterum tenellum Turcz. - NU
Helipterum tietkensis F. Muell. - NW LE NU GT EA EP MU
Helipterum troedelii F. Muell. - NW LE FR EA
Helipterum troedelii F. Muell. var. *patens* Ewart = *Helipterum troedelii*
Helipterum uniflorum J. Black - ?NW LE GT FR EA MU
Helipterum variable (Sonder) Ostenf. = *Helipterum hyalospermum*
Helminthotheca echioides (L.) Holub = *Picris echioides*
Helminthia echioides (L.) Gaertn. = *Picris echioides*
Humea cassiniacea F. Muell. = *Haeckeria cassiniaeformis*
Humea cassiniaeformis F. Muell. = *Haeckeria cassiniaeformis*
Humea pholidota (F. Muell.) J. Black = *Haeckeria pholidota*
Humea punctulata F. Muell. = *Haeckeria punctulata*
Humea squamata F. Muell. = *Haeckeria pholidota*
Humea tenerrima F. Muell. & Tate = *Basedowia tenerrima*
Hyalolepis occidentalis F. Muell. = *Myriocephalus rhizocephalus* var. *rhizocephalus*
Hyalolepis rhizocephala DC. = *Myriocephalus rhizocephalus* var. *rhizocephalus*
Hyalosperma variabilis Sonder = *Helipterum hyalospermum*
Hyalospermum glutinosum Steetz = *Helipterum hyalospermum*
Hyalospermum strictum Steetz = *Helipterum hyalospermum*
Hyoseris cretica L. = *Hedypnois rhagadioloides*
Hyoseris rhagadioloides L. = *Hedypnois rhagadioloides*
Hyoseris taraxacoides Villars = *Leontodon taraxacoides* ssp. *taraxacoides*
 **Hypochoeris glabra* L. - GT FR EA EP NL MU YP SL KI SE
 **Hypochoeris radicata* L. - EP NL MU YP SL KI SE
Inula graveolens (L.) Desf. = *Dittrichia graveolens*
Isoetopsis graminifolia Turcz. - NW LE NU GT FR EA EP NL MU YP SL
 **Iva axillaris* Pursh - NL
Ixioclamys cuneifolia (R. Br.) F. Muell. - NW LE FR
Ixioclamys filicifolia Dunlop - NW LE GT
Ixioclamys nana (Ewart & Jean White) Grau - LE NU GT FR EA
Ixiolaena brevicompta F. Muell. - LE
Ixiolaena chloroleuca Haegi - NE LE GT FR
Ixiolaena leptolepis (DC.) Benth. - NW LE GT FR EA EP NL MU YP SL SE
Ixiolaena leptolepis sensu J. Black (1957), partly = *Ixiolaena chloroleuca*
Ixiolaena plurisecta Haegi - NU EP
Ixiolaena supina F. Muell. - EP YP SL KI
Ixiolaena tomentosa Sonder & F. Muell. ex Sonder - NW LE FR EA EP NL MU SE
Ixiolaena tomentosa sensu J. Black (1957) = *Ixiolaena plurisecta*
Ixodia achillaeoides R. Br. ssp. *achillaeoides* - EP YP KI
Ixodia achillaeoides R. Br. ssp. *alata* (Schldl.) Copley - FR EP NL MU YP SL KI SE
Ixodia achillaeoides R. Br. ssp. *arenicola* Copley - SE
Ixodia achillaeoides R. Br. var. *alata* (Schldl.) Ewart = *Ixodia achillaeoides* ssp. *alata*
Ixodia alata Schldl. = *Ixodia achillaeoides* ssp. *alata*
Ixodia flindersica Copley - FR
Ixodia ptarmicoides F. Muell. = *Ixodia achillaeoides* ssp. *alata*
Kentrophyllum glaucum (M. Bieb.) Tausch. = *Carthamus glaucus*
Kentrophyllum lanatum (L.) DC. = *Carthamus lanatus*
Kipplisia suaedifolia (F. Muell.) Benth. - NW LE NU GT FR EA EP MU YP
 **Lactuca saligna* L. - LE EP MU SL SE
Lactuca scariola L. = *Lactuca serriola*
 **Lactuca serriola* L. - FR EA EP NL MU YP SL SE
Lactuca virosa sensu J. Black (1929) = *Lactuca serriola*
Lagenifera billardieri Cass. = *Lagenifera stipitata* var. *stipitata*
Lagenifera gracilis Steetz - SL SE

91.433 COMPOSITAE (contd)

- Lagenifera huegelii* Benth. - FR EP NL YP SL KI SE
Lagenifera stipitata (Labill.) Druce var. *stipitata* - SL KI SE
Lapsana capillaris L. = *Crepis capillaris*
 **Lapsana communis* L. - SL
Lawrencella rosea Lindley = *Helichrysum davenportii*
Leontodon hirta sensu J.Black (1957) = *Leontodon taraxacoides* ssp. *taraxacoides*
Leontodon leysseri (Wallr.) G.Beck = *Leontodon taraxacoides* ssp. *taraxacoides*
Leontodon nudicaulis (L.) Banks ex Schinz & R.Keller
 ssp. *taraxacoides* (Villars) Schinz & Thell. = *Leontodon taraxacoides* ssp. *taraxacoides*
 **Leontodon taraxacoides* (Vill.) Merat ssp. *taraxacoides* - SL KI SE
Leptorhynchos ambiguus (Turcz.) Benth. = *Helichrysum ambiguum* ssp. *ambiguum*
Leptorhynchos ambiguus (Turcz.) Benth. var. *semicalvus* (F.Muell.) Benth. =
Helichrysum ambiguum ssp. *ambiguum*
Leptorhynchos baileyi F.Muell. - NW LE GT FR EP MU
Leptorhynchos citrinus Benth. = *Waitzia citrina*
Leptorhynchos elongatus DC. - FR NL MU YP SL
Leptorhynchos linearis sensu Jessop (1984) = *Helichrysum rutidolepis*
Leptorhynchos medius Cunn. ex DC. = *Leptorhynchos scabrus*
Leptorhynchos pulchellus F.Muell. ex Sonder = *Leptorhynchos tetrachaetus*
Leptorhynchos rhytidantha DC. = *Leptorhynchos scabrus*
Leptorhynchos scabrus (Benth.) Haegi - FR EP NL YP SL SE
Leptorhynchos squamatus (Labill.) Less. - FR NL MU YP SL KI SE
Leptorhynchos tenuifolius F.Muell. - SE
Leptorhynchos tetrachaetus (Schldl.) J.Black - FR EP NL MU YP SL SE
Leptorhynchos tetrachaetus (Schldl.) J.Black var. *penicillatus* J.Black =
Leptorhynchos baileyi
Leptorhynchos waitzia Sonder - FR EP NL MU YP KI
 **Leucanthemum maximum* (Ramonid) DC. - SL
 **Leucanthemum vulgare* Lam. - SL
Leucophyta brownii Cass. = *Calocephalus brownii*
Leucophyta citrea Sonder (1853) = *Calocephalus sonderi*
 **Logfia gallica* (L.) Cosson & Germ. - LE MU SL SE
Matricaria discoidea DC. = *Matricaria matricarioides*
Matricaria matricarioides (Less.) Porter - SL
Matricaria parthenium L. = *Tanacetum parthenium*
Matricaria suffruticosa (L.) Druce = *Oncosiphon suffruticosum*
Melitella pusilla Sommier = *Crepis pusilla*
Microseris forsteri Hook.f. = *Microseris lanceolata*
Microseris lanceolata (Walp.) Schultz-Bip. - GT FR EA EP NL MU YP SL KI SE
Microseris scapigera sensu J.Black (1957) = *Microseris lanceolata*
Millotia depauperata Stapf = *Millotia myosotidifolia*
Millotia glabra Steetz = *Millotia myosotidifolia*
Millotia greevesii F.Muell. ssp. *greevesii* var. *greevesii* - LE FR EA
Millotia greevesii F.Muell. ssp. *kempei* (F.Muell.) Schodde
 var. *kempei* (F.Muell.) Schodde - LE
Millotia greevesii F.Muell. ssp. *kempei* (F.Muell.) Schodde
 var. *helmsii* (F.Muell. & Tate) Schodde - NW LE NU GT FR
Millotia hispidula Gand. = *Millotia tenuifolia* var. *tenuifolia*
Millotia kempei F.Muell. = *Millotia greevesii*
 ssp. *kempei* var. *kempei*
Millotia kempei F.Muell. var. *helmsii* F.Muell. & Tate =
Millotia greevesii ssp. *kempei* var. *helmsii*
Millotia macrocarpa Schodde - GT FR EA EP MU
Millotia myosotidifolia (Benth.) Steetz - NU GT FR EA EP NL MU YP SL KI SE
Millotia robusta Steetz = *Millotia myosotidifolia*
Millotia tenuifolia Cass. var. *nudescens* Schodde - MU SE
Millotia tenuifolia Cass. var. *tenuifolia* - FR EP NL MU YP SL KI SE
Millotia tenuifolia sensu J.Black (1957), partly = *Millotia myosotidifolia*
Minuria annua (Tate) J.Black - LE GT FR EA
Minuria asterioides Sonder = *Minuria leptophylla*
Minuria candollei F.Muell. var. *denticulata* (DC.) Maiden & Betche = *Minuria denticulata*
Minuria candollei F.Muell., partly = *Minuria denticulata*
Minuria candollei F.Muell., partly = *Minuria integerrima*
Minuria cunninghamii (DC.) Benth. - NW LE NU GT FR EA EP NL MU YP

91.433 COMPOSITAE (contd)

- Minuria denticulata* (DC.) Benth. - NW LE NU GT FR EA EP
Minuria gardneri Lander & Barry - NW NU
Minuria integerrima (DC.) Benth. - NW LE GT FR EA NL MU
Minuria leptophylla DC. - NW LE NU GT FR EA EP NL MU YP SL SE
Minuria rigida J.Black - LE FR EA
Minuria suaedifolia (F.Muell.) Benth. = *Kippistia suaedifolia*
Minuria tenuissima DC. = *Minuria leptophylla*
Minuriella annua Tate = *Minuria annua*
Monenteles glandulosus F.Muell. ex Benth. = *Pterocaulon serrulatum*
Monenteles serrulatus Montr. = *Pterocaulon serrulatum*
Monenteles sphacelatus Labill. = *Pterocaulon sphacelatum*
Myriocephalus pluriflorus (J.Black) D.Cooke - LE FR EA EP MU
Myriocephalus rhizocephalus (DC.) Benth. var. *pluriflorus* J.Black =
Myriocephalus pluriflorus
Myriocephalus rhizocephalus (DC.) Benth. var. *rhizocephalus* - EA EP NL MU SL KI SE
Myriocephalus rudallii (F.Muell.) Benth. - NW LE
Myriocephalus stuartii (F.Muell. & Sonder ex Sonder) Benth. -
 NW LE NU GT FR EA EP MU SE
Myriogyne cunninghamii DC. = *Centipeda cunninghamii*
Myriogyne minuta (Forster f.) Less. = *Centipeda minima*
Nematopus foliatus Sonder = *Gnephosis arachnoidea*
Olearia adenolasia (F.Muell.) F.Muell. ex Benth. - EP
Olearia arida E.Pritzel - NW LE
Olearia axillaris (DC.) F.Muell. ex Benth. - EP NL YP SL KI SE
Olearia brachyphylla (F.Muell. ex Sonder) Wakef. - GT FR EP NL MU YP SE
Olearia calcarea F.Muell. ex Benth. - NU FR EP NL MU
Olearia ciliata (Benth.) F.Muell. ex Benth. var. *ciliata* - FR EA EP NL MU YP SL KI SE
Olearia ciliata (Benth.) F.Muell. ex Benth. var. *squamifolia* Benth. - KI
Olearia conocephala (F.Muell.) F.Muell. ex Benth. = *Cratystylis conocephala*
Olearia decurrens (DC.) Benth. - GT FR EA EP NL MU YP SL
Olearia erubescens (Sieber ex DC.) Dippel - SE
Olearia exiguiifolia (F.Muell.) F.Muell. ex Benth. - NW NU GT EP YP
Olearia exilifolia (F.Muell.) Benth. = *Olearia brachyphylla*
Olearia ferresii (F.Muell.) F.Muell. ex Benth. - NW
Olearia floribunda (Hook.f.) Benth. var. *floribunda* - EP NL MU YP SL SE
Olearia floribunda (Hook.f.) Benth. var. *lanuginosa* J.H.Willis = *Olearia lanuginosa*
Olearia glandulosa (Labill.) Benth. - SL SE
Olearia glutinosa (Lindley) Benth. - SE
Olearia grandiflora Hook. - SL
Olearia hookeri sensu J.Black (1957) = *Olearia passerinoides* ssp. *passerinoides*
Olearia lanuginosa (J.H.Willis) Wakef. - EP NL MU YP SL SE
Olearia lepidophylla (Pers.) Benth. - EP MU SE
Olearia magniflora (F.Muell.) F.Muell. ex Benth. - NU FR EP MU YP
Olearia microdisca J.Black - YP KI
Olearia muelleri (Sonder) Benth. - NW NU GT FR EA EP NL MU YP
Olearia myrsinoides (Labill.) F.Muell. var. *erubescens* (Sieber ex DC.) F.Muell. ex Benth. =
Olearia erubescens
Olearia pannosa Hook. ssp. *cardiophylla* (F.Muell.) D.Cooke - FR NL
Olearia pannosa Hook. ssp. *pannosa* - FR EP NL MU YP SL SE
Olearia passerinoides (Turcz.) Benth. ssp. *glutescens* (Sonder) D.Cooke -
 NL MU YP SL SE
Olearia passerinoides (Turcz.) Benth. ssp. *passerinoides* - EP MU
Olearia picridifolia (F.Muell.) Benth. - FR EA EP NL MU YP SL SE
Olearia pimeleoides (DC.) Benth. ssp. *incana* D.Cooke - NW NU
Olearia pimeleoides (DC.) Benth. ssp. *pimeleoides* - GT FR EA EP NL MU YP
Olearia pimeleoides (DC.) Benth. var. *minor* Benth. = *Olearia brachyphylla*
Olearia ramulosa (Labill.) Benth. - GT FR EP NL YP SL KI SE
Olearia ramulosa sensu J.Black (1929), partly = *Olearia brachyphylla*
Olearia rudis (Benth.) F.Muell. ex Benth. var. *rudis* - NW EP YP SL KI SE
Olearia stuartii (F.Muell.) F.Muell. ex Benth. - NW LE GT
Olearia subspicata (Hook.) Benth. - NW NU GT EA EP MU
Olearia suffructicosa D.Cooke - SE
Olearia teretifolia (Sonder) F.Muell. ex Benth. - EP NL MU SL KI
Olearia toppii Ewart & Jean White = *Olearia passerinoides* ssp. *passerinoides*

91.433 COMPOSITAE (contd)

- Olearia tubuliflora* (Sonder & F.Muell. ex Sonder) Benth. - FR EP NL SL SE
Oligocarpus calendulaceus (L.f.) Less. = *Osteospermum calendulaceum*
 **Oncosiphon suffruticosum* (L.) Kellersjö - EP NL SL SE
 **Onopordum acanthium* L. ssp. *acanthium* - EP SL SE
 **Onopordum acaulon* L. - EA EP NL MU YP SL SE
 **Onopordum illyricum* L. ssp. *illyricum* - EP NL MU SE
 **Osteospermum calendulaceum* L.f. - NU EP
 **Osteospermum clandestinum* (Less.) Norlindh - NU GT FR EP NL MU YP SL
 **Osteospermum fruticosum* (L.) Norlindh - SL
Osteospermum moniliferum L. = *Chrysanthemoides monilifera*
Othonna abrotanifolia L. = *Euryops abrotanifolius*
Ozothamnus cinereus (Labill.) DC. = *Helichrysum paraliu*
Ozothamnus decurrens F.Muell. = *Helichrysum catadromum*
Ozothamnus ferrugineus (Labill.) DC. = *Helichrysum dendroideum*
Ozothamnus pholidotus F.Muell. = *Haeckeria pholidota*
Ozothamnus retusus Sonder & F.Muell. ex Sonder = *Helichrysum bilobum* ssp. *bilobum*
Ozothamnus scabra F.Muell. = *Helichrysum bilobum* ssp. *scabrum*
Ozothamnus tephrodes Turcz. = *Helichrysum obtusifolium*
Pachysurus multiflorus Turcz. = *Calocephalus platycephalus*
Pachysurus platycephalus F.Muell. = *Calocephalus platycephalus*
 **Pallenis spinosa* (L.) Cass. - EP NL MU YP SL SE
Panaetia athrixioides Sonder & F.Muell. ex Sonder =
 Asteridea athrixioides forma *athrixioides*
Panaetia muelleri Sonder = *Podolepis muelleri*
Pascalina glauca Ortega = *Wedelia glauca*
 **Pentzia incana* (Thunb.) Kuntze - FR EA
Pentzia suffruticosa (L.) J.B.Hutch. ex Merxm. = *Oncosiphon suffruticosum*
Pentzia virgata Less. = *Pentzia incana*
Phyllopappus lanceolatus Walp. = *Microseris lanceolata*
Picnomon acarna (L.) Cass. - NL MU YP SL
Picridium tingitanum (L.) Desf. = *Reichardia tingitana*
 **Picris echioides* L. - EP NL SL SE
 **Picris hieracioides* L. var. *hieracioides* - FR EP YP SL KI SE
Picris hieracioides L. var. *squarrosa* (Steetz) Benth. = *Picris squarrosa*
Picris squarrosa Steetz - MU YP SL KI SE
Pleuropappus phyllocalymmeus F.Muell. - EP MU YP
Pluchea conocephala (F.Muell.) F.Muell. = *Cratystylis conocephala*
Pluchea dentex R.Br. ex Benth. - NW LE FR EA
Pluchea cyrea (F.Muell.) F.Muell. = *Pluchea rubelliflora*
Pluchea cyrea F.Muell. var. *major* Benth. = *Pluchea dentex*
Pluchea ligulata F.Muell. = *Streptoglossa liatroides*
Pluchea rubelliflora (F.Muell.) Robinson - NW LE FR EA
Pluchea rubelliflora (F.Muell.) Robinson var. *major* J.Black = *Pluchea dentex*
Pluchea squarrosa Benth. = *Pluchea dentex*
Pluchea tetranthera F.Muell. var. *tetranthera* - LE
Podocoma cuneifolia R.Br. = *Ixioclamys cuneifolia*
Podocoma nana Ewart & Jean White = *Ixioclamys nana*
Podolepis acuminata R.Br. ex Aiton = *Podolepis jaceoides*
Podolepis affinis Sonder = *Podolepis canescens*
Podolepis arachnoidea (Hook.) Druce - LE
Podolepis canescens Cunn. ex DC. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Podolepis capillaris (Steetz) Diels - NW LE NU GT FR EA EP ?NL MU
Podolepis cupulata Maiden & Betche = *Podolepis muelleri*
Podolepis davisiana D.Cooke - LE GT FR
Podolepis georgei Diels = *Helichrysum ayersii*
Podolepis jaceoides (Sims) Voss - FR EP NL MU YP SL KI SE
Podolepis lessonii sensu J.Black (1957) = *Podolepis muelleri*
Podolepis longipedata Cunn. ex DC. - GT EP
Podolepis mitchellii Sonder = *Podolepis longipedata*
Podolepis muelleri (Sonder) G.L.Davis - FR EP NL SL
Podolepis rhytidoclamys F.Muell. = *Podolepis arachnoidea*
Podolepis rugata Labill. var. *littoralis* G.L.Davis - EP YP SL KI
Podolepis rugata Labill. var. *rugata* - LE NU FR EP NL MU YP SL KI SE
Podolepis rutidoclamys F.Muell. ex Benth. = *Podolepis arachnoidea*

91.433 COMPOSITAE (contd)

- Podolepis siemssenia* F.Muell. = *Podolepis capillaris*
Podolepis tepperi (F.Muell.) D.Cooke - EP NL MU YP SL
Podosperma angustifolium Labill. = *Podotheca angustifolia*
Podospermum laciniatum (L.) DC. = *Scorzonera laciniata*
Podospermum resedifolium (L.) DC. = *Scorzonera laciniata*
Podotheca angustifolia (Labill.) Less. - NU GT FR EP MU YP SL KI SE
Pogonolepis muelleriana (Sonder) P.Short - FR EP NL MU YP SL KI
Polycalymma stuartii F.Muell. & Sonder ex Sonder = *Myriocephalus stuartii*
Pseudognaphalium luteoalbum (L.) Hilliard & B.L.Burt -
 NW LE GT FR EA EP NL MU YP SL KI SE
Pterigeron adscendens Benth. = *Streptoglossa adscendens*
Pterigeron cylindriceps J.Black = *Streptoglossa cylindriceps*
Pterigeron dentatifolius F.Muell. = *Dichromochlamys dentatifolius*
Pterigeron liatroides (Turcz.) Benth. = *Streptoglossa liatroides*
Pterocaulon glandulosum (F.Muell. ex Benth.) Benth. & Hook.f. ex F.Muell. =
Pterocaulon serrulatum
Pterocaulon glandulosum (F.Muell. ex Benth.) Benth. & Hook.f. ex F.Muell.
 var. *velutineum* Ewart & O.B.Davies = *Pterocaulon serrulatum*
Pterocaulon serrulatum (Montr.) Guillaumin - NW LE
Pterocaulon serrulatum (Montr.) Guillaumin
 var. *velutineum* (Ewart & O.B.Davies) Guillaumin = *Pterocaulon serrulatum*
Pterocaulon sphacelatum (Labill.) Benth. & Hook.f. ex F.Muell. -
 NW LE GT FR EA EP MU SE
Pteropogon demissus A.Gray = *Helipterum demissum*
Pteropogon humboldtianus (Gaudich.) F.Muell. = *Helipterum humboldtianum*
Pteropogon laevis A.Gray = *Helipterum laeve*
Pteropogon pygmaeum DC. = *Helipterum pygmaeum*
Pteropogon ramosissimus F.Muell. = *Helichrysum semifertile*
Pumilo argyrolepis Schldl. = *Rutidosia multiflora*
Pycnosorus chrysanthus (Schldl.) Sonder = *Craspedia chrysantha*
Pycnosorus globosus Bauer ex Benth. = *Craspedia globosa*
Pyrethrum diversifolium Graham ex Hook. = *Brachycome diversifolia* var. *diversifolia*
Quinetia urvillei Cass. - EP NL MU SL SE
Reichardia picroides sensu J.Black (1957) = *Reichardia tingitana*
 **Reichardia tingitana* (L.) Roth - EA EP NL MU YP SL SE
Rhytidantha scabra Benth. = *Leptorhynchos scabrus*
Richea glauca Labill. = *Craspedia glauca*
Rutidochlamys mitchellii Sonder = *Podolepis arachnoidea*
Rutidosia arachnoidea Hook. = *Podolepis arachnoidea*
Rutidosia helichrysoides DC. - NW LE GT FR EA MU
Rutidosia multiflora (Nees) Robinson - EA EP NL MU YP SL KI SE
Rutidosia pumilo Benth. = *Rutidosia multiflora*
Sanolina suavolens Pursh = *Matricaria matricarioides*
Scalia jaceoides Sims = *Podolepis jaceoides*
Schoenia cassiniana (Gaudich.) Steetz = *Helichrysum cassinianum*
Schoenia chlorocephala Turcz. var. *patens* Ewart = *Helipterum chlorocephalum*
 **Scorzonera laciniata* L. - MU YP SL SE
Scorzonera resedifolia L. = *Scorzonera laciniata*
Scorzonera tingitana L. = *Reichardia tingitana*
Scyphocoronis major (Turcz.) Druce - NW EP YP
Scyphocoronis viscosa A.Gray = *Scyphocoronis major*
Senecio anethifolius Cunn. ex DC. - FR EA NL
 **Senecio angulatus* L. - ?MU SL ?SE
Senecio angustifolius sensu Sonder (1853) = *Senecio anethifolius*
Senecio angustilobus F.Muell. = *Senecio anethifolius*
Senecio argutus A.Rich. = *Senecio glomeratus*
Senecio behrianus Sonder & F.Muell. ex Sonder - MU
Senecio biserratus Belcher - SE
Senecio brachyglossus F.Muell. ex Benth. = *Senecio glossanthus*
Senecio cunninghamii DC. var. *cunninghamii* - FR NL MU YP SL SE
Senecio cunninghamii DC. var. *serratus* M.Lawr. - LE GT FR EA
 **Senecio elegans* L. - YP SE
Senecio flaccidus sensu A.Rich. (1834) = *Senecio biserratus*
Senecio gawlerensis M.Lawr. - NW FR EP

91.433 COMPOSITAE (contd)

- Senecio georgianus* DC. var. *georgianus* - ?NL
Senecio georgianus DC. var. *latifolius* J.Black = *Senecio gawlerensis*
Senecio glomeratus Desf. ex Poiret - EP SL SE
Senecio glossanthus (Sonder)Belcher - NW LE NU GT FR EA EP NL MU YP SL KI SE
Senecio gregorii F.Muell. - NW LE NU GT FR EA EP MU
Senecio helichrysoides F.Muell. = *Senecio georgianus* var. *georgianus*
Senecio hispidulus A.Rich. var. *dissectus* (Benth.)Belcher - ?not in S.Aust.
Senecio hispidulus A.Rich. var. *hispidulus* - SL SE
Senecio hypoleucus F.Muell. ex Benth. - SL
**Senecio jacobaea* L. - SL SE
Senecio laceratus (F.Muell.)Belcher - NW LE GT FR EP SE
Senecio lautus Forster f. ex Willd. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Senecio lautus Forster f. ex Willd. ssp. *dissectilobus* Ali = *Senecio lautus*
Senecio lautus Forster f. ex Willd. ssp. *lanceolatus* Ali = *Senecio lautus*
Senecio lautus Forster f. ex Willd. ssp. *maritimus* Ali = *Senecio lautus*
Senecio macrocarpus F.Muell. ex Belcher - NL MU YP SL SE
Senecio magnificus F.Muell. - NW LE GT FR EA EP NL MU KI SE
Senecio megaglossus F.Muell. - FR EP NL MU
**Senecio mikanoides* Otto ex Walp. - SL SE
Senecio minimus Poiret var. *minimus* - KI SE
Senecio minimus Poiret var. *picridioides* (Turcz.)Belcher = *Senecio picridioides*
Senecio minimus sensu E.Robertson (1957) = *Senecio biserratus*
Senecio multicaulis A.Rich. = *Senecio hispidulus*
Senecio multicaulis A.Rich. var. *dissecta* sensu E.Robertson (1957) =
? *Senecio hispidulus* var. *hispidulus*
Senecio multicaulis A.Rich. var. *dissecta* (Benth.)E.Robertson =
Senecio hispidulus var. *dissectus*
Senecio multicaulis sensu E.Robertson (1957) = *Senecio glomeratus*
Senecio myosotidifolius Benth. = *Millotia myosotidifolia*
Senecio odoratus Hornem. var. *longifolius* M.Lawr. - EP KI
Senecio odoratus Hornem. var. *obtusifolius* J.Black - SL
Senecio odoratus Hornem. var. *odoratus* - FR NL SL KI SE
Senecio odoratus Hornem. var. *petiolata* Sonder = *Senecio hypoleucus*
Senecio orarius J.Black - SE
Senecio picridioides (Turcz.)M.Lawr. - EP YP SL KI SE
Senecio platylepis DC. - not in S.Aust.
**Senecio pterophorus* DC. var. *pterophorus* - EP MU SL KI
Senecio pusillus A.Rich. = *Senecio hispidulus* var. *hispidulus*
Senecio quadridentatus Labill. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Senecio runcinifolius J.H.Willis - LE ?GT EA MU SL
Senecio scandens DC. = *Senecio mikanoides*
Senecio squarrosus A.Rich. - YP SE
**Senecio vulgaris* L. - SL SE
Serratula arvensis L. = *Cirsium arvense*
Serratula crupina (L.)Villars = *Crupina vulgaris*
Siemssenia capillaris Steetz = *Podolepis capillaris*
Sigesbeckia australiensis D.Schultz - NW FR EA NE SL
Sigesbeckia microcephala DC. = *Sigesbeckia orientalis* ssp. *orientalis*
Sigesbeckia microcephala sensu D.Cooke (1986) = *Sigesbeckia australiensis*
Sigesbeckia orientalis L. ssp. *orientalis* - SL KI SE
Sigesbeckia orientalis sensu J.Black (1957), partly = *Sigesbeckia australiensis*
Siloxerus brachypus (F.Muell.)Ising = *Angianthus brachypappus*
Silphiosperma collinum Sonder = *Brachycome perpusilla*
Silphiosperma perpusillum Steetz = *Brachycome perpusilla*
**Silybum marianum* (L.)Gaertner - FR EP NL SL SE
Skirrophorus eriocarpus F.Muell. = *Gnephosis eriocarpa*
Skirrophorus eriocephalus Hook.f. ex A.Gray = *Angianthus preissianus*
Skirrophorus muellerianus Sonder = *Pogonolepis muelleriana*
Skirrophorus preissianus Steetz = *Angianthus preissianus*
Solenogyne bellii var. *gunnii* sensu J.Black (1957) = *Solenogyne dominii*
Solenogyne dominii L.Adams - NL SL KI SE
Solenogyne emphyosopus Tate = *Solenogyne dominii*
Solenogyne gunnii (Hook.f.)Cabrera - not in S.Aust.
Solenogyne gunnii sensu J.Black (1957) = *Solenogyne dominii*

91.433 COMPOSITAE (contd)

- **Solidago canadensis* L. - NL SL
Solidago lepida DC. var. *elongata* sensu H.Eichler (1965) = *Solidago canadensis*
- **Soliva anthemifolia* (A.L.Juss.)R.Br. ex Less. - MU
- **Soliva pterosperma* (A.L.Juss.)Less. - NL SL
Soliva sessilis sensu J.Black (1957) = *Soliva pterosperma*
- **Sonchus arvensis* L. - NL
- **Sonchus asper* (L.)Hill ssp. *asper* - EP MU SL SE
- **Sonchus asper* (L.)Hill ssp. *glaucescens* (Jordan)Ball -
 NW LE NU GT FR EA EP NL MU YP SL KI SE
Sonchus asper (L.)Hill ssp. *nymanii* (Tineo & Guss.)Hegi = *Sonchus asper* ssp. *glaucescens*
Sonchus asper (L.)Hill var. *gracilis* sensu Cleland (1946) = *Sonchus hydrophilus*
Sonchus asper (L.)Hill var. *littoralis* J.Black = *Sonchus megalocarpus*
Sonchus asper (L.)Hill var. *megalocarpus* Hook.f. = *Sonchus megalocarpus*
Sonchus glaucescens Jordan = *Sonchus asper* ssp. *glaucescens*
Sonchus hydrophilus Boulos - NW LE FR EP MU YP SL KI SE
Sonchus megalocarpus (Hook.f.)J.Black - EP YP SL KI SE
Sonchus nymanii Tineo & Guss. = *Sonchus asper* ssp. *glaucescens*
- **Sonchus oleraceus* L. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Sonchus oleraceus L. var. *asper* L. = *Sonchus asper* ssp. *asper*
- **Sonchus tenerrimus* L. - NW LE GT FR EP YP SL
Sphaeranthus hirtus Willd. = *Sphaeranthus indicus*
Sphaeranthus indicus L. - LE
Sphaeromorphaea petiolaris DC. = *Epaltes australis*
Steetzia muelleri Sonder = *Olearia pannosa* ssp. *cardiophylla*
Steetzia ovata Sonder = *Olearia pannosa* ssp. *pannosa*
Steetzia pannosa (Hook.)F.Muell. = *Olearia pannosa* ssp. *pannosa*
Steiroglossa lineariloba DC. = *Brachycome lineariloba*
Stera conocephala (F.Muell.)Ewart & B.Rees = *Cratystylis conocephala*
Stobaea rigida Thunb. = *Berkheya rigida*
Streptoglossa adscendens (Benth.)Dunlop - LE FR EA
Streptoglossa cylindriceps (J.Black)Dunlop - NW LE
Streptoglossa liatroides (Turcz.)Dunlop - NW LE GT FR EA
Strongylosperma reptans Benth. = *Cotula reptans*
Stuartina hamata Philipson - LE GT FR EP MU
Stuartina muelleri Sonder - FR EP NL MU YP SL KI SE
Stylonocerus brachypappus (F.Muell.)Kuntze = *Angianthus brachypappus*
Stylonocerus multiflorus Nees = *Rutidosia multiflora*
Stylonocerus preissianus (Steetz)Kuntze = *Angianthus preissianus*
- **Tagetes minuta* L. - MU SL
- **Tanacetum boreale* Fischer ex Link - EP NL SL SE
Tanacetum huronense sensu J.Black (1909) = *Tanacetum boreale*
- **Tanacetum parthenium* (L.)Schultz-Bip. - SL SE
Tanacetum suffruticosum L. = *Oncosiphon suffruticosum*
- **Tanacetum vulgare* L. - ?SL
- Taraxacum erythrospermum* Anders. & Besser - MU SL SE
- **Taraxacum officinale* G.Weber ex Wiggers - EP NL YP SL KI SE
Therogeron denticulatum DC. = *Minuria denticulata*
Therogeron disseminatum Hagl. = *Taraxacum erythrospermum*
Therogeron integerrimum DC. = *Minuria integerrima*
Therogeron tenuifolium Sonder = *Minuria cunninghamii*
Thrinia hirta (L.)Roth = *Leontodon taraxacoides* ssp. *taraxacoides*
Thrinia leysseri Wallr. = *Leontodon taraxacoides* ssp. *taraxacoides*
- **Tolpis barbata* (L.)Gaertner - SL
Tolpis umbellata Bertol. = *Tolpis barbata*
Toxanthes major Turcz. = *Scyphocoronis major*
Toxanthes muelleri (Sonder)Benth. - NW NU FR EP NL MU YP SL KI SE
Toxanthes perpusillus Turcz. - NW NU GT FR EA EP MU SE
Toxanthes whitei J.Black = *Millotia greevesii* ssp. *kempei* var. *helmsii*
- **Tragopogon hybridus* L. - NL
Tragopogon picroides L. = *Urospermum picroides*
- **Tragopogon porrifolium* L. - FR NL MU SL SE
Trichanthodium skirrophorum Sonder & F.Muell. ex Sonder = *Gnephosis skirrophora*
Tripteris clandestina Less. = *Osteospermum clandestinum*
Triptilodiscus pygmaeus Turcz. - FR EP NE MU SL SE

91.433 COMPOSITAE (contd)

- **Urospermum picroides* (L.) F.W.Schmidt - FR EP NL MU YP SL KI SE
 **Vellereophyton dealbatum* (Thunb.) Hilliard & B.L.Burt - MU SL KI SE
 **Verbesina encelioides* (Cav.) Benth. & Hook. ex A.Gray - MU
Vittadinia arida N.Burb. - LE FR
Vittadinia australasica (Turcz.) N.Burb. var. *australasica* - NU EP MU YP SL KI SE
Vittadinia australasica (Turcz.) N.Burb. var. *oricola* N.Burb. - SL SE
Vittadinia australasica (Turcz.) N.Burb. var. *subglabra* N.Burb. - MU YP
Vittadinia australis A.Rich. var. *dissecta* Benth. = *Vittadinia dissecta* var. *hirta*
Vittadinia australis A.Rich. var. *megacephala* F.Muell. ex Benth. =
Vittadinia megacephala
Vittadinia australis A.Rich. var. *pterochaeta* F.Muell. ex Benth. = *Vittadinia pterochaeta*
Vittadinia blackii N.Burb. - LE FR EP NL MU YP SL SE
Vittadinia cervicalis N.Burb. var. *circularis* -
 NW LE NU GT FR EA EP NL MU YP SL SE
Vittadinia condyloides N.Burb. - LE FR EP NL MU YP SL
Vittadinia cuneata DC. var. *cuneata forma cuneata* - FR EP NL MU YP SL KI SE
Vittadinia cuneata DC. var. *morrisonii* N.Burb. - FR EA NL MU
Vittadinia cuneata DC. var. *murrayensis* N.Burb. - MU
Vittadinia cuneata sensu N.Burb. (1969) = *Vittadinia gracilis*
Vittadinia dissecta (Benth.) N.Burb. var. *hirta* N.Burb. - NW LE NU FR EP MU SL SE
Vittadinia eremaea N.Burb. - NW LE NU GT FR EA EP MU
Vittadinia gracilis (Hook.f.) N.Burb. - NW FR EA EP NL MU YP SL KI SE
Vittadinia megacephala (F.Muell. ex Benth.) J.Black - EP NL MU YP SL SE
Vittadinia nullarborensis N.Burb. - NU
Vittadinia pterochaeta (F.Muell. ex Benth.) J.Black - GT FR EA MU
Vittadinia pustulata N.Burb. - NW
Vittadinia scabra DC. - not in S.Aust.
Vittadinia scabra sensu J.Black (1957) = *Vittadinia eremaea*
Vittadinia sulcata N.Burb. - LE FR EA
Vittadinia tenuissima sensu J.Black (1957) = *Vittadinia blackii*
Vittadinia triloba (Gaudich.) DC. = *Vittadinia dissecta* var. *hirta*
 var. *dissecta* (Benth.) J.Black =
Vittadinia dissecta var. *hirta*
Vittadinia triloba (Gaudich.) DC. var. *lanuginosa* J.Black = *Vittadinia gracilis*
Vittadinia triloba sensu J.Black (1929), partly = *Vittadinia australasica* var. *australasica*
Vittadinia triloba sensu J.Black (1929), partly = *Vittadinia cervicalis* var. *circularis*
Vittadinia triloba sensu J.Black (1929), partly = *Vittadinia condyloides*
Vittadinia triloba sensu J.Black (1929), partly =
Vittadinia cuneata var. *cuneata forma cuneata*
Vittadinia triloba sensu J.Black (1929), partly = *Vittadinia sulcata*
Waitzia acuminata Steetz - NW LE NU GT FR EA EP MU SE
Waitzia citrina (Benth.) Steetz - NW LE GT
Waitzia corymbosa sensu Benth. (1867) = *Waitzia acuminata*
Waitzia steetiziana Lehm. = *Waitzia citrina*
Wedelia glauca (Ortega) Blake - EP SL
Wedelia stirlingii Tate - NW
Wedelia verbesinoides sensu J.Black (1957) = *Wedelia stirlingii*
Wollastonia eclipioides F.Muell. = *Eclipta platyglossa*
 **Xanthium californicum* E.Greene - MU SL
Xanthium chinense sensu C.McMillan (1975) = *Xanthium occidentale*
 **Xanthium occidentale* Bertol. - ?YP ?NL
Xanthium orientale sensu J.H.Willis (1973) = *Xanthium californicum*
Xanthium pungens Wallr. = *Xanthium occidentale*
 **Xanthium spinosum* L. - LE GT FR EA EP NL MU YP SL SE
Xanthium spinosum L. var. *heterocephalum* Widder = *Xanthium spinosum*
Xanthium strumarium sensu Ewart (1930) = *Xanthium occidentale*
Xeranthemum bracteatum Vent. = *Helichrysum bracteatum*
Ximenesia encelioides Cav. = *Verbesina encelioides*
Xyridanthe stricta Lindley = *Helipterum strictum*

91.436 ALISMATACEAE

- Actinocarpus minor* R.Br. = *Damasonium minus*
 **Alisma lanceolatum* With. - MU SL
Alisma plantago non L. = *Alisma lanceolatum*

91.436 ALISMATACEAE (contd)*Alisma plantago-aquatica* sensu J.Black (1943) = *Alisma lanceolatum**Damasonium australe* Salisb. = *Damasonium minus**Damasonium minus* (R.Br.) Buchen. - MU SE**Sagittaria graminea* Michaux ssp. *platyphylla* Engelm. - MU**Sagittaria graminea* Michaux var. *weatherbiana* (Fern.) Bogin - not in S.Aust.*Sagittaria weatherbiana* Fern. = *Sagittaria graminea* var. *weatherbiana***91.439 HYDROCHARITACEAE***Caulinia ovalis* R.Br. = *Halophila ovalis**Damasonium ovalifolium* R.Br. = *Ottelia ovalifolia**Halophila australis* Doty & Stone - EP NL YP SL KI SE*Halophila ovalis* (R.Br.) Hook.f. - not in S.Aust.*Halophila ovalis* (R.Br.) Hook.f. ssp. *australis* (Doty & Stone) Hartog = *Halophila australis**Halophila ovalis* sensu H.Aston (1973) = *Halophila australis**Halophila ovalis* sensu Jessop (1978) = *Halophila australis**Hydrilla verticillata* (L.f.) Royle - MU*Ottelia ovalifolia* (R.Br.) Rich. - EP MU SL KI SE*Serpicula verticillata* L.f. = *Hydrilla verticillata**Vallisneria gigantea* Graebner = *Vallisneria spiralis**Vallisneria nana* R.Br. = *Vallisneria spiralis**Vallisneria spiralis* L. - MU SL**91.441 APONOGETONACEAE****Aponogeton distachyos* L.f. - SL**91.442 JUNCAGINACEAE***Cynogeton huegelii* Endl. = *Triglochin procerum* var. *procerum**Cynogeton linearis* (Endl.) Sonder = *Triglochin procerum* var. *procerum**Cynogeton procerum* (R.Br.) Buchen. = *Triglochin procerum* var. *procerum**Triglochin calcaratum* Hook. = *Triglochin mucronatum**Triglochin calcitrapum* Hook. - NW LE NU GT FR EA EP NL MU YP SL SE*Triglochin calcitrapum* Hook. var. β Buchen. = *Triglochin calcitrapum**Triglochin calcitrapum* Hook. var. α Buchen. = *Triglochin calcitrapum**Triglochin calcitrapum* Hook. var. *isingianum* J.Black = *Triglochin calcitrapum**Triglochin centrocarpum* Hook. - NW LE NU GT FR EA EP NL MU YP SL KI SE*Triglochin centrocarpum* Hook. var. *calcitrapum* (Hook.) Benth. = *Triglochin calcitrapum**Triglochin decipiens* R.Br. = *Triglochin striatum**Triglochin elongatum* Ising = *Triglochin calcitrapum**Triglochin flaccidum* Cunn. = *Triglochin striatum**Triglochin hexagonum* J.Black - NW LE EP MU*Triglochin linearis* Endl. = *Triglochin procerum* var. *procerum**Triglochin minutissimum* F.Muell. - ?EP ?YP*Triglochin mucronatum* R.Br. - EP MU YP SL KI SE*Triglochin muelleri* sensu Randell (1986) = *Triglochin trichophorum**Triglochin nanum* F.Muell. = *Triglochin trichophorum**Triglochin neesii* Endl. = *Triglochin mucronatum**Triglochin ovoideum* J.Black = *Triglochin hexagonum**Triglochin procerum* R.Br. var. *procerum* - LE MU SL KI SE*Triglochin striatum* Ruiz Lopez & Pavón - LE FR EP NL MU YP SL KI SE*Triglochin trichophorum* Nees ex Endl. - EP MU YP SL SE*Triglochin turriferum* Ewart - SE**91.444 POTAMOGETONACEAE***Potamogeton australiensis* A.Bennett - SE*Potamogeton cheesemani* sensu H.Eichler (1965) = *Potamogeton tricarinatus**Potamogeton crispus* L. - NL MU SL SE*Potamogeton natans* sensu R.Br. (1810) = *Potamogeton tricarinatus**Potamogeton ochreateus* Raoul - FR EP SL ?MU KI SE*Potamogeton pectinatus* L. - LE EP NL MU SL KI SE*Potamogeton sulcatus* A.Bennett = *Potamogeton tricarinatus**Potamogeton tepperi* A.Bennett - MU SL SE*Potamogeton tricarinatus* F.Muell. & A.Bennett ex A.Bennett - FR EP MU SL KI SE*Ruppia cirrhosa* (Petagna) Grande - not in S.Aust.*Ruppia maritima* L. - NW LE

91.444 POTAMOGETONACEAE (contd)

- Ruppia maritima* sensu H.Aston, partly = *Ruppia megacarpa*
Ruppia maritima sensu H.Aston, partly = *Ruppia polycarpa*
Ruppia maritima sensu H.Aston, partly = *Ruppia tuberosa*
Ruppia maritima sensu Jessop (1978) = *Ruppia tuberosa*
Ruppia megacarpa R.Mason - FR EP NL MU SL KI SE
Ruppia polycarpa R.Mason - EP MU YP SL KI SE
Ruppia rostellata Koch ex Reichb. = *Ruppia maritima*
Ruppia spiralis L. ex Dumort. - not in S.Aust.
Ruppia spiralis sensu Jessop (1978), partly = *Ruppia megacarpa*
Ruppia spiralis sensu Jessop (1978), partly = *Ruppia polycarpa*
Ruppia spiralis sensu Jessop (1978), partly = *Ruppia tuberosa*
Ruppia tuberosa J.Davis & Toml. - EP NL YP SL KI SE

91.445 POSIDONIACEAE

- Caulinia oceanica* sensu R.Br. (1810) = *Posidonia australis*
Posidonia aff. *ostenfeldii* E.Robertson (1984), partly = *Posidonia coriacea*
Posidonia aff. *ostenfeldii* E.Robertson (1984), partly = *Posidonia denhartogii*
Posidonia angustifolia Cambridge & Kuo - EP NL YP SL KI SE
Posidonia australis Hook.f. - EP NL YP SL KI SE
Posidonia australis sensu H.Aston (1973), partly = *Posidonia angustifolia*
Posidonia australis sensu H.Aston (1973), partly = *Posidonia sinuosa*
Posidonia australis sensu Jessop (1978), partly = *Posidonia angustifolia*
Posidonia australis sensu Jessop (1978), partly = *Posidonia sinuosa*
Posidonia coriacea Cambridge & Kuo - NU EP YP SL KI SE
Posidonia denhartogii Kuo & Cambridge - NU EP YP SL SE
Posidonia ostenfeldii sensu Jessop (1978), partly = *Posidonia denhartogii*
Posidonia ostenfeldii Hartog - not in S.Aust.
Posidonia ostenfeldii sensu H.Aston (1973), partly = *Posidonia coriacea*
Posidonia ostenfeldii sensu H.Aston (1973), partly = *Posidonia denhartogii*
Posidonia ostenfeldii sensu Jessop (1978), partly = *Posidonia coriacea*
Posidonia sinuosa Cambridge & Kuo - EP NL YP SL KI SE

91.447 ZOSTERACEAE

- Heterozostera tasmanica* (Martens ex Asch.) Hartog - EP NL YP SL KI SE
Zostera capricorni Asch. - KI
Zostera mucronata Hartog - EP NL YP KI
Zostera muelleri Irmisch ex Asch. - SL KI SE
Zostera tasmanica Martens ex Asch. = *Heterozostera tasmanica*

91.448 ZANNICHELLIACEAE

- Althenia australis* (J.L.Drumm. ex Harvey) Asch. = *Lepilaena australis*
Althenia cylindrocarpa (Koern.) Asch. = *Lepilaena cylindrocarpa*
Althenia preissii (Lehm.) Asch. & Graebner = *Lepilaena preissii*
Lepilaena australis J.L.Drumm. ex Harvey - EP SL SE
Lepilaena bilocularis T.Kirk - MU SE
Lepilaena cylindrocarpa (Koern.) Benth. - EP YP SL KI SE
Lepilaena marina E.Robertson - EP NL YP SL KI
Lepilaena patentifolia E.Robertson - KI SE
Lepilaena preissii sensu H.Aston (1973), partly = *Lepilaena marina*
Lepilaena preissii sensu Jessop (1978), partly = *Lepilaena marina*
Lepilaena preissii (Lehm.) F.Muell. - EP SL SE
Zannichellia cylindrocarpa Koern. = *Lepilaena cylindrocarpa*
Zannichellia palustris L. - MU SE
Zannichellia preissii Lehm. = *Lepilaena preissii*

91.448a CYMODOCEACEAE

- Amphibolis antarctica* (Labill.) Sonder & Asch. ex Asch. - NU EP YP SL KI SE
Amphibolis griffithii (J.Black) Hartog - NU EP YP SL
Cymodocea antarctica (Labill.) Endl. = *Amphibolis antarctica*
Cymodocea griffithii (J.Black) J.Black = *Amphibolis griffithii*
Pectinella antarctica (Labill.) J.Black = *Amphibolis antarctica*
Pectinella griffithii J.Black = *Amphibolis griffithii*
Ruppia antarctica Labill. = *Amphibolis antarctica*

91.449 NAJADACEAE

- Najas major* All. = *Najas marina*
Najas marina L. - not in S.Aust.
Najas tenuifolia R.Br. - MU

91.451 LILIACEAE

- **Allium ampeloprasum* L. - FR ?NL ?YP SL SE
Allium fragrans Vent. = *Nothoscordum gracile*
Allium gracile Aiton = *Nothoscordum gracile*
Allium inodorum Aiton = *Nothoscordum inodorum*
**Allium neapolitanum* Cyr. - FR EP NL YP SL KI SE
**Allium paniculatum* L. ssp. *paniculatum* - NL SL
**Allium roseum* L. ssp. *bulbiferum* (Desf. ex DC.)E.Warb. - SL KI
Allium roseum L. var. *bulbiferum* Desf. ex DC. = *Allium roseum* ssp. *bulbiferum*
Allium rotundum L. = *Allium scorodoprasum* ssp. *rotundum*
**Allium scorodoprasum* L. ssp. *rotundum* (L.)Stearn - NL YP SL
**Allium scorodoprasum* L. ssp. *scorodoprasum* L. - ?SL
**Allium triquetrum* L. - EP SL KI SE
**Allium vineale* L. - SL KI
**Aloe arborescens* Miller - YP SL
Aloe latifolia Haw. = *Aloe saponaria*
Aloe perfoliata L. var. *saponaria* Aiton = *Aloe saponaria*
**Aloe saponaria* (Aiton)Haw. - SL
Anguillaria dioica R.Br. = *Wurmbea dioica* ssp. *dioica*
Anguillaria uniflora R.Br. = *Wurmbea uniflora*
Anthericum bulbosum R.Br. = *Bulbine bulbosa*
Anthericum milleflorum DC. = *Arthropodium milleflorum*
Anthericum paniculatum Andrews = *Arthropodium milleflorum*
Anthericum semibarbatum R.Br. = *Bulbine semibarbata*
Arthropodium fimbriatum R.Br. = *Dichopogon fimbriatus*
Arthropodium milleflorum (DC.)Macbride - FR SE
Arthropodium minus R.Br. - FR EA EP MU YP SL SE
Arthropodium paniculatum (Andrews)R.Br. = *Arthropodium milleflorum*
Arthropodium strictum R.Br. = *Dichopogon strictus*
Asparagus asparagoides (L.)Wight = *Myrsiphyllum asparagoides*
Asparagus crispus Lam. = *Myrsiphyllum declinatum*
Asparagus declinatus L. = *Myrsiphyllum declinatum*
Asparagus medeoloides (L.f.)Thunb. = *Myrsiphyllum asparagoides*
**Asparagus officinalis* L. - EP MU SL SE
Asparagus plumosus Baker = *Protasparagus setaceus*
Asparagus setaceus (Kunth)Jessop = *Protasparagus setaceus*
**Asphodelus fistulosus* L. - FR EA EP NL MU YP SL KI SE
**Asphodelus* sp. - ?EP
Bartlingia sessiliflora (Decne.)F.Muell. = *Laxmannia sessiliflora*
Bulbine alata Baijnath - NW LE GT FR EA EP
Bulbine bulbosa (R.Br.)Haw. - FR EP NL MU YP SL SE
Bulbine semibarbata (R.Br.)Haw. - GT FR EA EP MU YP SL KI SE
Bulbine semibarbata (R.Br.)Haw. var. *depilata* J.Black = *Bulbine alata*
Bulbinopsis bulbosa (R.Br.)Borzi = *Bulbine bulbosa*
Bulbinopsis semibarbata (R.Br.)Borzi = *Bulbine semibarbata*
Bulbinopsis semibarbata (R.Br.)Borzi var. *depilata* (J.Black)H.Eichler = *Bulbine alata*
Burchardia umbellata R.Br. - EP MU SL YP KI SE
Caesia calliantha R.Henderson - FR EP NL MU YP SL KI SE
Caesia corymbosa R.Br. = *Chamaescilla corymbosa* var. *corymbosa*
Caesia lateriflora sensu Jessop (1976), partly = *Corynotheca licrota*
Caesia lateriflora sensu Jessop (1976), partly = *Corynotheca micrantha* var. *divaricata*
Caesia parviflora R.Br. var. *minor* R.Henderson - SE
Caesia vittata sensu Jessop (1986) = *Caesia calliantha*
Calectasia cyanea R.Br. var. *intermedia* (Sonder)Anway = *Calectasia intermedia*
Calectasia intermedia Sonder - SE
Chamaescilla corymbosa (R.Br.)F.Muell. ex Benth. var. *corymbosa* -
FR EP NL MU YP SL KI SE
Chlamysporum juncifolium Salisb. = *Thysanotus juncifolius*
**Colchicum autumnale* L. - ?SE
Corynotheca lateriflora (R.Br.)F.Muell. ex Benth. - not in S.Aust.

91.451 LILIACEAE (contd)

- Corynotheca licrota* R.Henderson - NU MU
Corynotheca micrantha (Lindley)Druce var. *divaricata* R.Henderson - LE
Dianella divaricata R.Br. = *Dianella revoluta* var. *divaricata*
Dianella laevis sensu Jessop, partly = *Dianella longifolia* var. *grandis*
Dianella laevis sensu Jessop, partly = *Dianella longifolia* var. *porracea*
Dianella longifolia R.Br. var. *grandis* R.Henderson - FR NL SL SE
Dianella longifolia R.Br. var. *porracea* R.Henderson - MU
Dianella revoluta R.Br. var. *brevicaulis* Ostenf. - EP NL MU YP SL KI SE
Dianella revoluta R.Br. var. *divaricata* (R.Br.)R.Henderson -
 NW NU FR EP ?NL ?MU ?SL
Dianella revoluta R.Br. var. *revoluta* - NU GT FR EA EP NL MU YP SL KI SE
Dichopogon fimbriatus (R.Br.)Macbride - FR EP NL MU YP SL KI SE
Dichopogon strictus (R.Br.)Baker - NW FR EP NL MU YP SL KI SE
Dracaena medeoloides L.f. = *Myrsiphyllum asparagoides*
 **Hyacinthoides non-scripta* (L.)Chouard ex Rothm. - SL
Hyacinthus comosus L. = *Muscari comosum*
Hyacinthus non-scriptus L. = *Hyacinthoides non-scripta*
 **Ipheion uniflorum* (Graham)Raf. - ?EP YP SL NL
 **Lachenalia aloides* (L.f.)Hort. - SL
 **Lachenalia bulbifera* (Cirillo)Hort. - YP
Lachenalia pendula Sol. = *Lachenalia bulbifera*
Lachenalia tricolor Jacq. = *Lachenalia aloides*
Laxmannia orientalis Keighery - EP MU YP SL KI SE
Laxmannia sessiliflora Decne. - not in S.Aust.
Laxmannia sessiliflora sensu Jessop (1986) = *Laxmannia orientalis*
Leopoldia comosa (L.)Parl. = *Muscari comosum*
Lomandra caespitosa (Benth.)Ewart - ?SL
Lomandra caespitosa sensu J.Black (1943) = *Lomandra sororia*
Lomandra collina (R.Br.)Ewart - NU FR EP NL MU YP SL SE
Lomandra densiflora J.Black - FR EP NL MU YP SL
Lomandra dura (F.Muell.)Ewart = *Lomandra multiflora* ssp. *dura*
Lomandra effusa (Lindley)Ewart - NU FR EP NL MU YP SL SE
Lomandra fibrata J.Black - NL SL
Lomandra glauca (R.Br.)Ewart - not in S.Aust.
Lomandra glauca (R.Br.)Ewart ssp. *collina* (R.Br.)A.Lee = *Lomandra collina*
Lomandra glauca (R.Br.)Ewart ssp. *nana* A.Lee = *Lomandra nana*
Lomandra juncea (F.Muell.)Ewart - EP NL MU SL SE
Lomandra leucocephala (R.Br.)Ewart ssp. *robusta* A.Lee -
 NW LE NU GT EA EP NL MU YP SL SE
Lomandra longifolia Labill. - ?SL SE
Lomandra micrantha (Endl.)Ewart ssp. *micrantha* - EP NL MU YP SL SE
Lomandra micrantha (Endl.)Ewart ssp. *tuberculata* Everett - EP SL KI SE
Lomandra multiflora (R.Br.)Britten ssp. *dura* (F.Muell.)T.Macfarl. -
 LE FR EA NL MU YP SL SE
Lomandra multiflora (R.Br.)Britten ssp. *multiflora* - not in S.Aust.
Lomandra multiflora sensu J.Black (1943) = *Lomandra multiflora* ssp. *dura*
Lomandra nana (A.Lee)A.Lee - MU SL SE
Lomandra sororia (F.Muell. ex Benth.)Ewart - NL MU SL SE
Medeola asparagoides L. = *Myrsiphyllum asparagoides*
Milla uniflora Graham = *Ipheion uniflorum*
Murchisonia volubilis Brittan - NW NU GT
 **Muscari armeniacum* Baker - FR NL SL
 **Muscari comosum* (L.)Miller - SL
Muscari conicum Baker = *Muscari armeniacum*
Muscari neglectum sensu J.Black (1943) = *Muscari armeniacum*
 **Myrsiphyllum asparagoides* (L.)Willd. - FR EP NL MU YP SL KI SE
 **Myrsiphyllum declinatum* (L.)Oberm. - NL YP SL KI
Nothoscordum fragrans (Vent.)Kunth = *Nothoscordum gracile*
Nothoscordum gracile (Aiton)Stearn - MU SL SE
 **Nothoscordum inodorum* (Aiton)Nicholson - YP SL SE
Nothoscordum inodorum sensu Jessop (1986) = *Nothoscordum gracile*
 **Ornithogalum arabicum* L. - EP ?MU YP SL KI SE
 **Ornithogalum pyrenaicum* L. - NL
 **Ornithogalum thyrsoideum* Jacq. - EP ?MU SL

91.451 LILIACEAE (contd)

- **Ornithogalum umbellatum* L. - NL MU YP SL
Phormium aloides L.f. = *Lachenalia aloides*
Phormium bulbifera Cirillo = *Lachenalia bulbifera*
 **Protasparagus setaceus* (Kunth) Oberm. - MU YP SL
Reya umbellata (R.Br.) Kuntze = *Burchardia umbellata*
 **Scilla hyacinthoides* L. - KI ?SE
 **Scilla peruviana* L. - ?FR EP NL ?YP SL ?SE
Stypandra caespitosa R.Br. = *Thellionema caespitosum*
Stypandra glauca R.Br. - EP
Thellionema caespitosum (R.Br.) R.Henderson - SE
Thysanotus baueri R.Br. - NU GT FR EA EP NL MU YP SL
Thysanotus dichotomus sensu J.Black (1943) = *Thysanotus juncifolius*
Thysanotus exasperatus F.Muell. = *Thysanotus tenellus*
Thysanotus exiliflorus F.Muell. - NW LE GT
Thysanotus exiliflorus sensu J.Black (1922) = *Murchisonia volubilis*
Thysanotus fractiflexus Brittan - ?EP KI
Thysanotus juncifolius (Salisb.) J.H.Willis & Court - EP MU SL KI SE
Thysanotus nudicaulis Brittan - EP
Thysanotus patersonii R.Br. - FR EP NL MU YP SL KI SE
Thysanotus patersonii R.Br. var. *exfimbriatus* J.Black, partly = *Murchisonia volubilis*
Thysanotus patersonii R.Br. var. *exfimbriatus* J.Black, partly = *Thysanotus patersonii*
Thysanotus tenellus Endl. - ?LE FR NL ?SL
Thysanotus tuberosus R.Br. ssp. *parviflorus* (Benth.) Brittan - SE
Thysanotus tuberosus R.Br. ssp. *tuberosus* - SE
Thysanotus tuberosus R.Br. var. *parviflorus* Benth. =
 Thysanotus tuberosus ssp. *parviflorus*
Thysanotus wangariensis Brittan - EP
Tricoryne elatior R.Br. - EP NL MU YP SL KI SE
Tricoryne tenella R.Br. - EP KI
Wurmbea centralis T.Macfarl. - GT FR EA EP KI
Wurmbea dioica (R.Br.) F.Muell. ssp. *dioica* - LE NU GT FR EA EP NL MU YP SL KI SE
Wurmbea latifolia T.Macfarl. - EP NL KI
Wurmbea uniflora (R.Br.) T.Macfarl. - SL SE
Xanthorrhoea australis R.Br. - SE
Xanthorrhoea australis sensu Jessop (1978) = *Xanthorrhoea caespitosa*
Xanthorrhoea caespitosa Bedford - SE
Xanthorrhoea minor R.Br. ssp. *lutea* Bedford - SE
Xanthorrhoea quadrangulata F.Muell. - LE FR EA NL MU SL SE
Xanthorrhoea semiplana F.Muell. ssp. *semiplana* - ?EA ?YP SL SE
Xanthorrhoea semiplana F.Muell. ssp. *tateana* (F.Muell.) Bedford - EP YP SL KI SE
Xanthorrhoea tateana F.Muell. = *Xanthorrhoea semiplana* ssp. *tateana*
Xanthorrhoea thortonii Tate - NW
Xerotes caespitosa Benth. = *Lomandra caespitosa*
Xerotes collina R.Br. = *Lomandra collina*
Xerotes dura F.Muell. = *Lomandra multiflora* ssp. *dura*
Xerotes effusa Lindley = *Lomandra effusa*
Xerotes glauca R.Br. = *Lomandra glauca*
Xerotes juncea F.Muell. = *Lomandra juncea*
Xerotes leucocephala R.Br., partly = *Lomandra leucocephala* ssp. *robusta*
Xerotes micrantha Endl. = *Lomandra micrantha* ssp. *micrantha*
Xerotes sororia F.Muell. ex Benth. = *Lomandra sororia*

91.463 AGAVACEAE

- **Agave americana* L. var. *americana* - NL MU SL
 **Agave americana* L. var. *picta* (Salm-Dyck) A.Terrac. - ?MU ?SL
Agave picta Salm-Dyck = *Agave americana* var. *picta*

91.466 AMARYLLIDACEAE

- **Amaryllis belladonna* L. hybrids - SL
Amaryllis lutea L. = *Sternbergia lutea* ssp. *lutea*
Calostemma luteum Sims - LE GT ?FR MU
Calostemma purpureum R.Br. - NW FR NL MU YP SL
Crinum flaccidum Herbert - LE GT FR EA EP MU
Crinum luteolum H.P.Traub & L.S.Hann. - ?LE ?GT

91.466 AMARYLLIDACEAE (contd)

- **Leucojum aestivum* L. - FR SL
- **Narcissus jonquilla* L. - SL
- **Narcissus pseudonarcissus* L. - SL
- **Narcissus tazetta* L. - ?EP NL YP SL KI
- **Sternbergia lutea* (L.)Ker Gawler ex Sprengel ssp. *lutea* - NL MU ?SL

91.467 HYPOXIDACEAE

- Hypoxis glabella* R.Br. - EP SL SE
- Hypoxis hookeri* Geer. - FR EP NL MU YP SL KI SE
- Hypoxis pusilla* Hook.f. = *Hypoxis hookeri*

91.472 PONTEDERIACEAE

- **Eichhornia crassipes* (C.Martius)Solms - ?MU
- Eichhornia speciosa* Kunth = *Eichhornia crassipes*
- Pontederia crassipes* C.Martius = *Eichhornia crassipes*

91.473 IRIDACEAE

- Acidantha platypetala* sensu J.Black (1943) = *Gladiolus tristis*
- Antholyza aethiopica* sensu J.Black (1943) = *Chasmanthe floribunda* var. *floribunda*
- Antholyza floribunda* Salisb. = *Chasmanthe floribunda* var. *floribunda*
- Antholyza meriana* L. = *Watsonia meriana*
- **Babiana stricta* (Sol.)Ker Gawler - SL
- Chasmanthe aethiopica* sensu H.Eichler (1965) = *Chasmanthe floribunda* var. *floribunda*
- **Chasmanthe floribunda* (Salisb.)N.E.Br. var. *floribunda* - EP NL ?YP SL SE
- **Crocosmia × crocosmiliflora* (Lemoine ex Morren)N.E.Br. - MU SL SE
- **Dierama pendulum* (L.f.)Baker - SE
- Dierama pulcherrima* sensu Jessop (1978) = *Dierama pendulum*
- Eveltria multiflora* (Sweet)Raf. = *Orthrosanthus multiflorus*
- **Ferraria crispa* Burman ssp. *crispa* - ?EP SL KI SE
- Ferraria undulata* L. = *Ferraria crispa* ssp. *crispa*
- **Freesia hybrid* - EP YP SL KI SE
- Freesia refracta* sensu Jessop (1978) = *Freesia hybrid*
- Genosiris fragilis* Labill. = *Patersonia fragilis*
- Genosiris occidentalis* (R.Br.)F.Muell. = *Patersonia occidentalis*
- **Gladiolus angustus* L. - ?SL
- Gladiolus bicolor* Thunb. = *Synnotia villosa*
- Gladiolus blandus* Sol. = *Gladiolus carneus*
- Gladiolus byzantinus* Miller = *Gladiolus communis* ssp. *byzantinus*
- **Gladiolus carneus* Delaroche - SL ?KI
- **Gladiolus communis* L. ssp. *byzantinus* (Miller)A.P.Ham. - SL KI
- Gladiolus cuspidatus* Jacq. = *Gladiolus undulatus*
- **Gladiolus floribundus* Jacq. - SL
- Gladiolus grandis* sensu Ewart (1931) = *Gladiolus tristis*
- Gladiolus illyricus* sensu H.Eichler (1965) = *Gladiolus communis* ssp. *byzantinus*
- Gladiolus lineatus* Salisb. = *Tritonia lineata*
- Gladiolus longicollis* sensu H.Eichler (1965) = *Gladiolus tristis*
- Gladiolus marginatus* L.f. = *Watsonia marginata*
- Gladiolus pyramidatus* Andrews = *Watsonia pyramidata*
- Gladiolus strictus* Sol. = *Babiana stricta*
- **Gladiolus tristis* L. - EP SL KI
- **Gladiolus undulatus* L. - EP NL MU SL KI
- Gladiolus villosus* Burman f. = *Synnotia villosa*
- Gladiolus watsonius* Thunb. = *Homoglossum watsonium*
- **Gynandris setifolia* (L.f.)Forster - FR EP NL MU YP SL KI SE
- **Hesperantha falcata* (L.f.)Ker Gawler - ?SL
- Homeria breyniana* sensu H.Eichler (1965) = *Homeria flaccida*
- Homeria collina* (Thunb.)Salisb. var. *ochroleuca* (Salisb.)Baker = *Homeria ochroleuca*
- Homeria collina* (Thunb.)Salisb. - not in S.Aust.
- Homeria collina* sensu J.Black (1909) = *Homeria flaccida*
- **Homeria flaccida* Sweet - MU YP SL KI SE
- **Homeria miniata* (Andrews)Sweet - EP NL YP SL
- **Homeria ochroleuca* Salisb. - EP
- **Homoglossum watsonium* (Thunb.)N.E.Br. - NL SL
- Iris edulis* L.f. = *Moraea fugax* ssp. *fugax*

91.473 IRIDACEAE (contd)

- **Iris germanica* L. - ?FR YP SL KI ?SE
- Iris ochroleuca* L. = *Iris orientalis*
- **Iris orientalis* Miller - SL
- Iris setifolia* L.f. = *Gynandriris setifolia*
- Iris stylosa* Desf. = *Iris unguicularis*
- **Iris unguicularis* Poir. - ?YP SL
- Ixia bulbifera* L. = *Sparaxis bulbifera*
- Ixia falcata* L.f. = *Hesperantha falcata*
- **Ixia flexulosa* L. - SL
- Ixia flexuosa* sensu J.Black (1943) = *Ixia polystachya*
- **Ixia hybrid/cultivar* - SL
- **Ixia maculata* L. - EP NL SL
- **Ixia paniculata* Delaroche - SL
- Ixia pendula* L.f. = *Dierama pendulum*
- **Ixia polystachya* L. - SL KI
- Ixia rosea* L., partly = *Romulea rosea* var. *australis*
- Ixia squalida* Sol. = *Tritonia squalida*
- Ixia tricolor* Schneev. = *Sparaxis tricolor*
- **Ixia viridiflora* Lam. - EP ?SL
- Lomenia borbonica* Pourret = *Watsonia borbonica*
- Montbretia* × *crocosmiiflora* Lemoine ex Morren = *Crocasmia* × *crocosmiiflora*
- **Moraea aristata* (Delaroche) Asch. & Graebner - ?SL
- **Moraea bellendenii* (Sweet) N.E.Br. - SL
- Moraea collina* Thunb. = *Homeria flaccida*
- Moraea edulis* (L.f.) Ker Gawler = *Moraea fugax* ssp. *fugax*
- **Moraea fugax* (Delaroche) Jacq. ssp. *fugax* - ?SL
- Moraea juncea* sensu H.Eichler (1965) = *Moraea vegeta*
- Moraea miniata* Andrews = *Homeria miniata*
- Moraea pavonia* Ker Gawler var. *lutea* Baker = *Moraea bellendenii*
- **Moraea vegeta* L. - NL KI
- Moraea xerospatha* MacOwan ex Baker = *Gynandriris setifolia*
- Moraea xerospatha* MacOwan ex Baker var. *monophylla* J.Black = *Gynandriris setifolia*
- Orthrosanthus multiflorus* Sweet - EP KI
- Patersonia fragilis* (Labill.) Asch. & Graebner - SL KI SE
- Patersonia glauca* R.Br. = *Patersonia fragilis*
- Patersonia longiscapa* Sweet = *Patersonia occidentalis*
- Patersonia occidentalis* R.Br. - SL KI SE
- Romulea bulbocodium* sensu Ewart (1931) = *Romulea rosea* var. *australis*
- Romulea columnae* sensu J.Black (1943) = *Romulea minutiflora*
- Romulea cruciata* (Ker Gawler) Ecklon var. *australis* Ewart = *Romulea rosea* var. *australis*
- Romulea longifolia* (Salisb.) Baker = *Romulea rosea* var. *australis*
- **Romulea minutiflora* Klatt - EP NL MU YP SL SE
- Romulea parviflora* Ecklon = *Romulea rosea* var. *australis*
- **Romulea rosea* (L.) Ecklon var. *australis* (Ewart) De Vos - EP MU SL KI SE
- Sisyrinchium cyaneum* Lindley = *Orthrosanthus multiflorus*
- **Sisyrinchium iridifolium* Kunth - SL SE
- Sisyrinchium multiflorum* (Sweet) Steudel = *Orthrosanthus multiflorus*
- **Sparaxis bulbifera* (L.) Ker Gawler - EP SL KI SE
- Sparaxis grandiflora* sensu J.H. Willis (1970) = *Sparaxis bulbifera*
- **Sparaxis tricolor* (Schneev.) Ker Gawler - NL SL
- Synnotia bicolor* (Thunb.) Sweet = *Synnotia villosa*
- **Synnotia villosa* (Burman f.) N.E.Br. - SL SE
- Trichonema longifolium* Salisb. = *Romulea rosea* var. *australis*
- **Tritonia crocata* (L.) Ker Gawler - SL
- Tritonia crocosmiifolia* Nicholson = *Crocasmia* × *crocosmiiflora*
- **Tritonia lineata* (Salisb.) Ker Gawler - ?NL SL KI
- **Tritonia squalida* (Sol.) Ker Gawler - SL
- Vieusseuxia aristata* Delaroche = *Moraea aristata*
- Vieusseuxia bellendenii* Sweet = *Moraea bellendenii*
- Vieusseuxia fugax* Delaroche = *Moraea fugax* ssp. *fugax*
- **Watsonia borbonica* (Pourret) Goldbl. - SL SE
- **Watsonia bulbifera* J. Matthews & L. Bolus - NL SL
- **Watsonia marginata* (L.f.) Ker Gawler - SL
- Watsonia meriana* (L.) Miller - ?NL SL

91.473 IRIDACEAE (contd)*Watsonia meriana* sensu J.Black (1943) = *Watsonia bulbillifera**Watsonia pyramidata* (Andrews) Klatt = *Watsonia borbonica***91.478 JUNCACEAE****Juncus acutus* L. - FR EP NL MU SL SE*Juncus amabilis* Edgar - SL SE*Juncus aridicola* L.Johnson - FR EP MU**Juncus articulatus* L. - NL MU SL SE*Juncus australis* Hook.f. - SL SE*Juncus bufonius* L. - NW GT FR EP NL MU YP SL KI SE*Juncus bufonius* L. var. *fasciculatus* (Bertol.) Koch = *Juncus bufonius***Juncus bulbosus* L. - SL SE*Juncus caespiticius* E.Meyer - FR EP NL SL KI SE**Juncus capitatus* Weigel - EP NL MU YP SL KI SE*Juncus continuus* L.Johnson - FR SL**Juncus effusus* L. - SL*Juncus flavidus* L.Johnson - FR EP YP SL SE*Juncus holoschoenus* R.Br. - FR SE*Juncus homalocaulis* F.Muell. ex Benth. - SE*Juncus kraussii* Hochst. - LE FR EP NL MU YP SL KI SE*Juncus lampocarpus* Ehrh. = *Juncus articulatus**Juncus maritimus* Lam. var. *australiensis* Buchen. = *Juncus kraussii**Juncus pallidus* R.Br. - NL SL KI SE*Juncus pauciflorus* R.Br. - MU SL KI SE*Juncus planifolius* R.Br. - FR SL KI SE*Juncus plebeius* R.Br. = *Juncus bufonius**Juncus plebeius* sensu J.Black (1943) = *Juncus homalocaulis**Juncus polyanthemos* sensu J.Black (1943), partly = *Juncus sarophorus**Juncus polyanthemos* sensu J.Black (1943), partly = *Juncus usitatus**Juncus prismatocarpus* R.Br. - FR MU SL SE*Juncus prismatocarpus* sensu J.Black (1943) = *Juncus holoschoenus**Juncus procerus* E.Meyer - SE*Juncus radula* Buchen. - EP NL SE*Juncus radula* Buchen. var. *laevior* Buchen. = *Juncus subsecundus**Juncus revolutus* R.Br. - not in S.Aust.*Juncus sarophorus* L.Johnson - FR NL MU SL**Juncus subnodulosus* Schrank - SL*Juncus subsecundus* Wakef. - LE FR EP NL MU SL SE*Juncus usitatus* L.Johnson - EA MU SL*Juncus vaginatus* sensu J.Black (1943) = *Juncus subsecundus**Luzula australasica* Steudel - MU SL*Luzula campestris* (L.) DC. var. *flaccida* Buchen. = *Luzula flaccida**Luzula densiflora* (Nordensk.) Edgar - SL SE*Luzula flaccida* (Buchen.) Edgar - SL KI SE*Luzula meridionalis* Nordensk. - FR EP NL MU SL KI SE*Luzula meridionalis* Nordensk. var. *densiflora* Nordensk. = *Luzula densiflora**Luzula meridionalis* Nordensk. var. *flaccida* (Buchen.) Nordensk. = *Luzula flaccida***91.481 COMMELINACEAE***Commelina ensifolia* R.Br. - LE*Commelina undulata* R.Br. = *Commelina ensifolia***Tradescantia fluminensis* Vell. - SL**91.484 XYRIDACEAE***Xyris operculata* Labill. - SL KI SE**91.487 ERIOCAULACEAE***Eriocaulon carsonii* F.Muell. - LE*Eriocaulon submersum* Tate = *Eriocaulon carsonii**Eriocaulon tatei* Ruhland = *Eriocaulon carsonii*

91.488 RESTIONACEAE

- Calorophus lateriflorus* F.Muell. = *Empodisma minus*
Calorophus minor Hook.f. = *Empodisma minus*
Colostrophus lateriflorus F.Muell. = *Empodisma minus*
Empodisma minus (Hook.f.) L.Johnson & Cutler - SL KI SE
Hypolaena fastigiata R.Br. - FR EP MU SL KI SE
Hypolaena lateriflora (F.Muell.) Benth. = *Empodisma minus*
Lepidobolus drapetocoleus F.Muell. - YP SL SE
Leptocarpus brownii Hook.f. - EP SL SE
Leptocarpus tenax (Labill.) R.Br. - MU SL KI SE
Lepyrodia muelleri Benth. - SE
Lepyrodia valliculata J.Black - SL KI
Loxocarya fasciculata (R.Br.) Benth. - EP
Restio complanatus R.Br. - KI
Restio fasciculatus R.Br. = *Loxocarya fasciculata*
Restio lateriflorus R.Br. = *Empodisma minus*
Restio tetraphyllus Labill. - SE
Schoenodum tenax Labill. = *Leptocarpus tenax*

91.491 CENTROLEPIDACEAE

- Alepyrum polygynum* R.Br. = *Centrolepis polygyna*
Aphelia gracilis Sonder - SL KI SE
Aphelia pumilio F.Muell. ex Sonder - SL KI SE
Brizula gracilis (Sonder) Hieron. = *Aphelia gracilis*
Brizula pumilio (F.Muell. ex Sonder) Hieron. = *Aphelia pumilio*
Centrolepis aristata (R.Br.) Roemer & Schultes - EP NL MU YP SL KI SE
Centrolepis cephaloformis Reader ssp. *cephaloformis* - FR EP MU YP SL SE
Centrolepis cephaloformis Reader ssp. *murrayi* (J.Black) D.Cooke - EP
Centrolepis drummondiana (Nees) Walp. - EA
Centrolepis eremica D.Cooke - NW LE FR EA EP
Centrolepis fascicularis Labill. - SL KI SE
Centrolepis glabra (F.Muell. ex Sonder) Hieron. - KI SE
Centrolepis murrayi J.Black = *Centrolepis cephaloformis* ssp. *murrayi*
Centrolepis polygyna (R.Br.) Hieron. - FR EP NL MU YP SL KI SE
Centrolepis strigosa (R.Br.) Roemer & Schultes - FR EP NL MU YP SL KI SE
Desvauxia aristata R.Br. = *Centrolepis aristata*
Desvauxia drummondiana Nees = *Centrolepis drummondiana*
Desvauxia drummondii Nees = *Centrolepis drummondiana*
Desvauxia glabra F.Muell. ex Sonder = *Centrolepis glabra*
Desvauxia strigosa R.Br. = *Centrolepis strigosa*
Trithuria submersa Hook.f. - EP KI SE

91.495 GRAMINEAE

- Aegilops incurva* L. = *Parapholis incurva*
 * × *Agropogon littoralis* (Smith) C.E.Hubb. - SE
Agropyron elongatum Host ex P.Beauv. = *Elymus elongatus*
Agropyron junceiforme (A. & D.Löve) A. & D.Löve = *Elymus farctus*
Agropyron junceum (L.) P.Beauv. = *Elymus farctus*
Agropyron repens (L.) P.Beauv. = *Elymus repens*
Agropyron scabrum (Labill.) P.Beauv. = *Elymus scabrus*
Agrostis aemula R.Br. - ?NW ?FR EP NL MU YP SL KI SE
Agrostis aequata Nees - SE
Agrostis africana Poir. = *Sporobolus indicus* var. *africanus*
Agrostis alba sensu J.Black (1943) = *Agrostis gigantea*
Agrostis avenacea J.Gmelin var. *avenacea* - LE GT FR EA EP MU YP SL KI SE
Agrostis avenacea J.Gmelin var. *perennis* Vick. - NW LE FR EA MU SL
Agrostis billardieri R.Br. var. *billardieri* - EP NL MU YP SL KI SE
Agrostis billardieri R.Br. var. *filifolia* Vick. - SL SE
Agrostis billardieri R.Br. var. *robusta* Vick. - SE
Agrostis capensis Willd. = *Sporobolus indicus* var. *africanus*
 * *Agrostis capillaris* L. var. *capillaris* - MU SL SE
Agrostis filiformis (Forster f.) Sprengel = *Agrostis avenacea* var. *avenacea*
Agrostis forsteri Rich. ex Roemer & Schultes = *Agrostis avenacea* var. *avenacea*
 * *Agrostis gigantea* Roth - NL SL SE
Agrostis limitanea J.Black - NL

91.495 GRAMINEAE (contd)

- Agrostis matrella* L. = *Zoysia matrella*
Agrostis miliacea L. = *Piptatherum miliaceum*
Agrostis ovata Forster f. = *Echinopogon ovatus*
Agrostis procera Retz. = *Eriochloa procera*
Agrostis quadrifida Labill. = *Pentapogon quadrifidus*
Agrostis quadriseta (Labill.) R.Br. = *Deyeuxia quadriseta*
Agrostis rara R.Br. = *Dichelachne inaequiglumis*
Agrostis rudis Roemer & Schultes - SE
Agrostis scabra R.Br. = *Agrostis rudis*
Agrostis sciurea R.Br. = *Dichelachne micrantha*
Agrostis semiverticillata (Forsskal) C.Ch. = *Polypogon viridis*
Agrostis solandri F.Muell., partly = *Agrostis avenacea* var. *avenacea*
Agrostis solandri sensu Tate (1890) = *Agrostis billardieri* var. *billardieri*
Agrostis tenuis Sibth. = *Agrostis capillaris* var. *capillaris*
Agrostis verticillata Villars = *Polypogon viridis*
Agrostis virginica L. = *Sporobolus virginicus*
Agrostis viridis Gouan = *Polypogon viridis*
Agrostis vulgaris With. = *Agrostis capillaris* var. *capillaris*
Aira caespitosa L. = *Deschampsia caespitosa*
* *Aira caryophyllea* L. - FR EP NL MU YP SL KI SE
* *Aira cupaniana* Guss. - FR EP NL MU YP SL KI SE
Aira elegans Willd. ex Gaudich. = *Aira elegantissima* ssp. *elegantissima*
* *Aira elegantissima* Schur ssp. *elegantissima* - NL SL KI ?SE
Aira minuta L. = *Molineriella minuta*
Aira villosa L.f., partly = *Ehrharta villosa* var. *maxima*
Alopecurus agrestis L. = *Alopecurus myosuroides*
Alopecurus australis Nees = *Alopecurus geniculatus*
* *Alopecurus geniculatus* L. - LE GT FR EA MU SL SE
Alopecurus monspeliensis L. = *Polypogon monspeliensis*
* *Alopecurus myosuroides* Hudson - SE
* *Alopecurus pratensis* L. - MU SL KI
* *Ammophila arenaria* (L.) Link - EP NL YP SL KI SE
Ammophila arundinacea Host = *Ammophila arenaria*
Amphibromus archeri (Hook.f.) P.Morris - SL SE
Amphibromus archeri (Hook.f.) P.Morris var. *papillosus* P.Morris = *Amphibromus archeri*
Amphibromus macrorhinus S.W.L.Jacobs & Lapinuro - EP SL SE
Amphibromus neesii sensu Jessop (1978), partly = *Amphibromus macrorhinus*
Amphibromus neesii sensu Jessop (1978), partly = *Amphibromus nervosus*
Amphibromus nervosus (Hook. f.) Druce - FR NL MU SL KI SE
Amphibromus recurvatus Swallen - SE
Amphipogon caricinus F.Muell. - NW NU GT FR EP NL MU YP SL SE
Amphipogon strictus R.Br. var. *setifer* Benth. - GT FR NL MU SL SE
Amphipogon strictus sensu J.Black (1943) = *Amphipogon caricinus*
Andropogon affinis R.Br. = *Dichanthium affine*
Andropogon ambiguus Steudel = *Cymbopogon ambiguus*
Andropogon annulatus Forsskal var. *humilis* Benth. = *Dichanthium affine*
Andropogon bladhii Retz. = *Bothriochloa bladhii*
Andropogon ewartianus Domin = *Bothriochloa ewartiana*
Andropogon gryllus sensu J.Black (1943) = *Chrysopogon fallax*
Andropogon halepensis (L.) Brot. = *Sorghum halepense*
Andropogon hirtus L. = *Hyparrhenia hirta*
Andropogon intermedius R.Br. = *Bothriochloa bladhii*
Andropogon inundatus F.Muell. = *Bothriochloa bladhii*
Andropogon ischaemum sensu Benth. (1878) = *Bothriochloa ewartiana*
Andropogon macer Steudel = *Bothriochloa macra*
Andropogon pertusa sensu Benth. (1878) = *Bothriochloa macra*
Andropogon sericeus R.Br. = *Dichanthium sericeum*
Anisantha diandra (Roth) Tutin = *Bromus diandrus*
Anisantha madritensis (L.) Nevski = *Bromus madritensis*
Anisantha rubens (L.) Nevski = *Bromus rubens*
Anthistiria australis R.Br. = *Themeda triandra*
Anthistiria avenacea F.Muell. = *Themeda avenacea*
Anthistiria ciliata sensu Benth. (1878) = *Themeda triandra*
Anthistiria membranacea Lindley = *Iseilema membranaceum*

91.495 GRAMINEAE (contd)***Anthoxanthum odoratum L. - MU SL KI SE***Aristida adscensionis* L. var. *anthoxanthoides* Domin = *Aristida anthoxanthoides**Aristida anthoxanthoides* (Domin) Henrard - NW LE GT FR EA EP*Aristida arenaria* Trin. var. *hirsuta* Henrard = *Aristida contorta**Aristida arenaria* sensu Gaudich. (1829) = *Aristida contorta**Aristida arida* B.Simon - FR EA*Aristida australis* B.Simon - SL*Aristida behriana* F.Muell. - FR EA EP NL MU YP SL*Aristida biglandulosa* J.Black var. *biglandulosa* - NW*Aristida browniana* Henrard = *Aristida holathera* var. *holathera**Aristida calycina* R.Br. var. *strigosa* Henrard = *Aristida strigosa**Aristida capillifolia* Henrard - NW LE*Aristida contorta* F.Muell. - NW LE NU GT FR EA EP NL MU SL*Aristida contorta* F.Muell. var. *hirsuta* (Henrard) H.Eichler = *Aristida contorta**Aristida depressa* sensu Benth. (1878) = *Aristida anthoxanthoides**Aristida echinata* Henrard var. *nitidula* Henrard = *Aristida nitidula**Aristida holathera* Domin var. *holathera* - NW LE GT NU FR EA NL MU YP SL*Aristida inaequiglumis* Domin - LE*Aristida jerichoensis* (Domin) Henrard var. *subspinulifera* sensu Lazarides (1980) =*Aristida biglandulosa* var. *biglandulosa**Aristida latifolia* Domin - NW LE EA*Aristida muelleri* Henrard = *Aristida holathera* var. *holathera**Aristida muricata* sensu J.Black (1943) = *Aristida strigosa**Aristida nitidula* (Henrard) S.T.Blake ex J.Black - NW LE GT FR EA EP ?NL*Aristida obscura* Henrard - NW*Aristida personata* Henrard = *Aristida ramosa* var. *speciosa**Aristida ramosa* R.Br. var. *speciosa* Henrard - SL*Aristida stipoides* sensu R.Br. (1810) = *Aristida holathera* var. *holathera**Aristida strigosa* (Henrard) S.T.Blake ex J.Black - NW LE SL*Arrhenatherum avenaceum* (Scop.) P.Beauv. = *Arrhenatherum elatius* ssp. *bulbosum****Arrhenatherum elatius (L.) J.S. & C.Presl**ssp. *bulbosum* (Willd.) Schuebler & Martens - SL SE*Arrhenatherum elatius* (L.) J.S. & C.Presl var. *bulbosum* (Willd.) Spenner =*Arrhenatherum elatius* ssp. *bulbosum**Arundo arenaria* L. = *Ammophila arenaria**Arundo australis* Cav. = *Phragmites australis****Arundo donax L. - YP SL***Arundo karka* Retz. = *Phragmites karka**Arundo phragmites* L. = *Phragmites australis**Arundo poaeformis* Labill. = *Poa poaeformis**Arundo selloana* Schultes & Schultes f. = *Cortaderia selloana**Arundo semiannularis* Labill. = *Danthonia semiannularis**Arundo vulgaris* Lam. = *Phragmites australis**Astrebla lappacea* (Lindley) Domin - LE FR EA*Astrebla pectinata* (Lindley) F.Muell. - NW LE GT FR EA MU*Astrebla triticoides* (Lindley) F.Muell. = *Astrebla lappacea****Avellinia michelii (Savi) Parl. - EP NL MU YP SL KI SE***Avena alba* sensu J.H.Willis (1970) = *Avena barbata****Avena barbata Pott ex Link - LE GT FR EP NL MU YP SL KI SE***Avena bulbosa* Willd. = *Arrhenatherum elatius* ssp. *bulbosum****Avena fatua L. - LE NU GT FR EA EP NL MU YP SL SE***Avena filiformis* Forster f. = *Agrostis avenacea* var. *avenacea**Avena ludoviciana* Durieu = *Avena sterilis* ssp. *ludoviciana**Avena nervosa* sensu R.Br. (1810) = *Amphibromus nervosus**Avena pumila* Desf. = *Lophochloa pumila**Avena quadriseta* Labill. = *Deyeuxia quadriseta****Avena sativa L. - NW LE EP NL YP SL KI SE*****Avena sterilis L. ssp. ludoviciana (Durieu) Nyman - SL***Avena tuberosa* Gilib. = *Arrhenatherum elatius* ssp. *bulbosum****Axonopus affinis Chase - SL***Bothriochloa ambigua* S.T.Blake = *Bothriochloa macra**Bothriochloa bladhii* (Retz.) S.T.Blake - GT FR*Bothriochloa decipiens* sensu J.Black (1943) = *Bothriochloa macra**Bothriochloa ewartiana* (Domin) C.E.Hubb. - NW LE GT FR

91.495 GRAMINEAE (contd)

- Bothriochloa intermedia* (R.Br.) A. Camus = *Bothriochloa bladhii*
Bothriochloa inundata F. Muell. = *Bothriochloa bladhii*
Bothriochloa macra (Steudel) S. T. Blake - FR NL MU YP SL SE
Brachiaria gilesii (Benth.) Chase - NW LE
Brachiaria miliiformis (J. S. Presl ex C. Presl) Chase = *Brachiaria subquadriflora*
Brachiaria notochthona (Domin) Stapf - LE MU YP SL
Brachiaria piligera (F. Muell. ex Benth.) Hughes - MU
Brachiaria praetervisa (Domin) C. E. Hubb. - NW EA GT FR EA EP
Brachiaria subquadriflora (Trin.) A. S. Hitchc. - NW LE GT MU
Brachyachne ciliaris (Kuntze) C. E. Hubb. - LE GT
* *Brachypodium distachyon* (L.) P. Beauv. - FR EP NL MU YP SL SE
* *Briza maxima* L. - FR EP NL MU SL KI SE
* *Briza minor* L. - FR EP NL YP SL KI SE
Brizopyrum acutiflorum Nees = *Plagiachloa acutiflora*
Bromus arenarius Labill. - NW LE NU GT FR EA EP NL MU YP SL KI SE
* *Bromus catharticus* M. Vahl - LE FR EP NL MU YP SL SE
* *Bromus diandrus* Roth - LE NU GT FR EP NL MU YP SL KI SE
Bromus distachyos L. = *Brachypodium distachyon*
* *Bromus fasciculatus* C. Presl - not in S. Aust.
Bromus gussonii Parl. = *Bromus diandrus*
* *Bromus hordeaceus* L. ssp. *hordeaceus* - EP NL MU YP SL KI SE
* *Bromus lanceolatus* Roth - MU SL KI SE
Bromus macrostachys Desf. = *Bromus lanceolatus*
* *Bromus madritensis* L. - FR EP NL MU YP SL KI SE
Bromus maximus Desf. = *Bromus rigidus*
Bromus michelii Savi = *Avellinia michelii*
Bromus mollis L. = *Bromus hordeaceus* ssp. *hordeaceus*
* *Bromus rigidus* Roth - ?FR EP MU YP SL SE
Bromus rigidus sensu J. Black (1943) = *Bromus diandrus*
* *Bromus rubens* L. - NU FR EA EP NL MU YP SL ?KI SE
Bromus schraderi Kunth = *Bromus catharticus*
* *Bromus stamineus* Desv. - not in S. Aust.
* *Bromus sterilis* L. - not in S. Aust.
* *Bromus tectorum* L. - not in S. Aust.
Bromus unioloides (Willd.) Kunth = *Bromus catharticus*
Bromus villosus Asch. & Graebner = *Bromus rigidus*
Bromus willdenowii Kunth = *Bromus catharticus*
Calamagrostis aemula Steudel var. *billardieri* (R.Br.) Maiden & Betche =
Agrostis billardieri var. *billardieri*
Calamagrostis aequata (Nees) J. Black = *Agrostis aequata*
Calamagrostis densa (Benth.) Maiden & Betche = *Deyeuxia densa*
Calamagrostis filiformis (Forster f.) Cockayne = *Agrostis avenacea* var. *avenacea*
Calamagrostis minor (F. Muell. ex Benth.) J. Black = *Deyeuxia minor*
Calamagrostis quadriseta (Labill.) Sprengel = *Deyeuxia quadriseta*
Capriola ciliaris Kuntze = *Brachyachne ciliaris*
Catapodium rigidum (L.) C. E. Hubb. = *Desmazeria rigida*
* *Cenchrus ciliaris* L. - NW LE FR EA EP MU
Cenchrus echinatus L. forma *longispinus* Hackel = *Cenchrus longispinus*
Cenchrus echinatus sensu C. Gardner (1952) = *Cenchrus longispinus*
* *Cenchrus incertus* M. Curtis - EP MU
* *Cenchrus longispinus* (Hackel) Fern. - FR EP MU YP SL
* *Cenchrus setigerus* M. Vahl - LE
* *Cenchrus tribuloides* L. - not in S. Aust.
Cenchrus tribuloides sensu J. Black (1943) = *Cenchrus incertus*
Ceratochloa cathartica (M. Vahl) Herter = *Bromus catharticus*
Ceratochloa unioloides (Willd.) P. Beauv. = *Bromus catharticus*
Chamaeraphis spinescens (R.Br.) Poir. = *Pseudoraphis spinescens*
Chloris acicularis Lindley = *Enteropogon acicularis*
Chloris barbata Sw. var. *decora* (Nees ex Steudel) Benth. = *Chloris virgata*
Chloris decora Nees ex Steudel = *Chloris virgata*
Chloris distichophylla Lagasca = *Eustachys distichophylla*
Chloris divaricata R.Br. var. *minor* J. Black = *Chloris pectinata*
* *Chloris gayana* Kunth - GT MU YP SL SE
Chloris moorei F. Muell. = *Enteropogon acicularis*

91.495 GRAMINEAE (contd)

- Chloris pectinata* Benth. - LE FR EA NL YP SL
Chloris scariosa F.Muell. = *Oxychloris scariosa*
Chloris truncata R.Br. - LE FR EA EP NL MU YP SL SE
Chloris ventricosa R.Br. - not in S.Aust.
 **Chloris virgata* Sw. - NW LE FR EP NL MU YP SL
Chrysopogon fallax S.T.Blake - LE
Chrysopogon gryllus sensu Benth. = *Chrysopogon fallax*
 **Cortaderia selloana* (Schultes & Schultes f.)Asch. & Graebner - EP MU SL
Critesion glaucum (Steudel)A.Löve = *Hordeum glaucum*
Cymbopogon ambiguus (Steudel)A.Camus - NW LE GT FR EA EP NL MU SL
Cymbopogon bombycinus sensu J.Black (1943) = *Cymbopogon obtectus*
Cymbopogon exaltatus sensu J.Black (1943) = *Cymbopogon ambiguus*
Cymbopogon obtectus S.T.Blake - NW LE GT FR EP MU SL
Cynodon ciliaris Benth. = *Brachyachne ciliaris*
 **Cynodon dactylon* (L.)Pers. - NW LE EA FR NL MU YP SL SE
 **Cynodon nlemfuensis* Vanderyst - SL
Cynosurus aegyptius L. = *Dactyloctenium aegyptium*
Cynosurus aureus L. = *Lamarckia aurea*
 **Cynosurus cristatus* L. - SL
Cynosurus durus L. = *Sclerochloa dura*
 **Cynosurus echinatus* L. - ?LE MU SL KI SE
Cynosurus indicus L. = *Eleusine indica*
Cynosurus tristachyos Lam. = *Eleusine tristachya*
 **Dactylis glomerata* L. - YP SL SE
Dactylis glomerata L. ssp. *hispanica* (Roth)Nyman = *Dactylis glomerata*
Dactylis hispanica Roth = *Dactylis glomerata*
Dactylis spicata Willd. = *Elytrophorus spicatus*
 **Dactyloctenium aegyptium* (L.)P.Beauv. - not in S.Aust.
Dactyloctenium aegyptium sensu J.Black (1943) = *Dactyloctenium radulans*
Dactyloctenium radulans (R.Br.)P.Beauv. - NW LE GT FR EA EP NL SL SE
Danthonia airoides (Nees)Nees = *Pentaschistis airoides*
Danthonia archeri Hook.f. = *Amphibromus archeri*
Danthonia auriculata J.Black - FR NL MU SL
Danthonia bipartita F.Muell. = *Monachather paradoxa*
Danthonia caespitosa Gaudich. - NW NU GT FR EA EP NL MU YP SL KI SE
Danthonia carphoides F.Muell. ex Benth. var. *angustior* Vick. - SL
Danthonia carphoides F.Muell. ex Benth. var. *carphoides* - NL SL SE
Danthonia clelandii Vick. - SL
Danthonia duttoniana Cashm. - NL MU SL SE
Danthonia eriantha Lindley - FR NL SL SE
Danthonia geniculata J.Black - FR MU ?YP SL KI SE
Danthonia laevis Vick. - SL
Danthonia lappacea Lindley = *Astrebla lappacea*
Danthonia linkii Kunth var. *fulva* Vick. - FR NL SL SE
Danthonia linkii Kunth var. *linkii* - not in S.Aust.
Danthonia nervosa Hook. f. = *Amphibromus nervosus*
Danthonia pectinata Lindley = *Astrebla pectinata*
Danthonia penicillata sensu J.Black = *Danthonia racemosa* var. *racemosa*
Danthonia pilosa R.Br. var. *paleacea* Vick. - ?EP ?NL SL
Danthonia pilosa R.Br. var. *pilosa* - FR NL MU SL KI SE
Danthonia purpurascens Vick. = *Danthonia tenuior*
Danthonia racemosa R.Br. var. *racemosa* - FR EP NL MU SL KI SE
Danthonia richardsonii Cashm. - SL
Danthonia semiannularis (Labill.)R.Br. - MU SL ?SE
Danthonia semiannularis (Labill.)R.Br. var. *browniana* Domin, partly =
 Danthonia linkii var. *fulva*
Danthonia semiannularis (Labill.)R.Br. var. *browniana* Domin, partly = *Danthonia tenuior*
Danthonia semiannularis sensu J.Black (1943), partly = *Danthonia caespitosa*
Danthonia setacea R.Br. var. *setacea* - NU FR EP NL MU YP SL KI SE
Danthonia tenuior (Steudel)Conert - ?NL SL SE
Danthonia thunbergii Kunth = *Pentaschistis thunbergii*
Danthonia triticoides Lindley = *Astrebla lappacea*
 **Deschampsia caespitosa* (L.)P.Beauv. - SL
Desmazeria acutiflora (Nees)Hemsl. = *Plagiochloa acutiflora*

91.495 GRAMINEAE (contd)

- **Desmazeria rigida* (L.)Tutin - FR EP NL MU YP SL KI SE
Deyeuxia aequata (Nees)Benth. = *Agrostis aequata*
Deyeuxia billardieri (R.Br.)Kunth = *Agrostis billardieri* var. *billardieri*
Deyeuxia densa Benth. - SL KI SE
Deyeuxia forsteri (Rich. ex Roemer & Schultes)Kunth = *Agrostis avenacea* var. *avenacea*
Deyeuxia minor F.Muell. ex Benth. - SL KI
Deyeuxia quadriseta (Labill.)Benth. - FR EP YP SL KI SE
Dichanthium affine (R.Br.)A.Camus - NW LE GT FR EA
Dichanthium ewartianum (Domin)C.Gardner = *Bothriochloa ewartiana*
Dichanthium humilium J.Black = *Dichanthium affine*
Dichanthium sericeum (R.Br.)A.Camus - NW LE GT FR EA NL SL
Dichelachne crinita (L.f.)Hook.f. - not in S.Aust.
Dichelachne crinita sensu Jessop (1978) = *Dichelachne longiseta*
Dichelachne inaequiglumis (Hackel & Cheeseman)Edgar & Connor - ?NL SL
Dichelachne longiseta Trin. & Rupr. - FR EP NL MU YP SL KI SE
Dichelachne micrantha (Cav.)Domin - FR NL SL KI SE
Dichelachne rara (R.Br.)Vick. ssp. *asperula* Veldk. =
Dichelachne sieberiana
Dichelachne rara (R.Br.)Vick. ssp. *asperula* sensu Jessop (1978) =
Dichelachne inaequiglumis
Dichelachne sciurea (R.Br.)Hook.f. = *Dichelachne micrantha*
Dichelachne sciurea (R.Br.)Hook.f. var. *inaequiglumis* Hackel & Cheeseman =
Dichelachne inaequiglumis
Dichelachne setacea (R.Br.)Nees = *Stipa setacea*
Dichelachne sieberiana Trin. & Rupr. - not in S.Aust.
Dichelachne stipoides Hook.f. = *Stipa stipoides*
Digitaria adscendens (Kunth)Henrard = *Digitaria ciliaris*
**Digitaria aequiglumis* (Hackel & Arech.)Parodi - SL
Digitaria ammophila Hughes - NW LE EA ?EP MU SL
Digitaria brownii (Roemer & Schultes)Hughes - NW LE GT FR EA EP MU SL
Digitaria brownii (Roemer & Schultes)Hughes var. *monostachya* (Benth.)Hughes =
Digitaria brownii
Digitaria ciliaris (Retz.)Koel. - EP MU SL SE
Digitaria coenicola (F.Muell.)Hughes var. *coenicola* - NW LE GT FR EA
Digitaria ctenantha (F.Muell.)Hughes - LE
Digitaria divaricatissima (R.Br.)Hughes - ?not in S.Aust.
**Digitaria ischaemum* (Schreber)Schreber ex Muhlenb. - SL
Digitaria paspalodes Michaux = *Paspalum distichum*
Digitaria sanguinalis (L.)Scop. - ?GT FR EP NL MU YP SL KI SE
**Digitaria violascens* Link - SL
Diplachne fusca (L.)P.Beauv. ex Roemer & Schultes - LE FR EA MU NL YP MU SL
Diplachne loliiformis (F.Muell.)F.Muell. ex Benth. = *Tripogon loliiformis*
Diplachne muelleri Benth. = *Diplachne fusca*
Diplachne parviflora (R.Br.)Benth. - MU YP SL
Diplachne reptatrix (L.)Druce = *Diplachne fusca*
Distichlis distichophylla (Labill.)Fassett - LE EP NL MU YP SL KI SE
Distichlis maritima sensu Benth. (1878) = *Distichlis distichophylla*
Distichlis spicata sensu J.Black (1943) = *Distichlis distichophylla*
**Echinochloa colona* (L.)Link - MU SL
**Echinochloa crus-galli* (L.)P.Beauv. - LE EA EP NL MU YP SL SE
**Echinochloa crus-pavonis* (Kunth)Schultes - SL
Echinochloa inundata Michael & Vick. - LE
Echinochloa lacunaria (F.Muell.)Michael & Vick. - ?MU
Echinochloa turnerana sensu Vick. & Michael (1970) = *Echinochloa inundata*
**Echinochloa utilis* Ohwi & Yab. - NL MU SL KI SE
Echinopogon ovatus (Forster f.)P.Beauv. - NU FR EP NL SL KI SE
**Ehrharta calycina* Smith - EP NL MU YP SL KI SE
Ehrharta distichophylla Labill. = *Tetrarrhena distichophylla*
**Ehrharta erecta* Lam. - NL SL SE
**Ehrharta longiflora* Smith - NU FR EP MU YP SL KI SE
Ehrharta stipoides Labill. = *Microlaena stipoides* var. *stipoides*
**Ehrharta villosa* (L.f.)Schultes f. ex Schultes & Schultes f. var. *maxima* Stapf -
EP NL MU YP SL
Eleusine aegyptiaca sensu Benth. (1878) = *Dactyloctenium radulans*

91.495 GRAMINEAE (contd)

- Eleusine coracana* sensu J.Black (1948) = *Eleusine tristachya*
 **Eleusine indica* (L.) Gaertner - EP MU SL
Eleusine radulans R.Br. = *Dactyloctenium radulans*
 **Eleusine tristachya* (Lam.) Lam. - NL MU SL SE
Elymus caput-medusae L. = *Taeniatherum caput-medusae*
 **Elymus elongatus* (Host) Runem. - EP NL YP SL SE
 **Elymus farctus* (Viv.) Runem. ex Melderis - SL SE
 **Elymus repens* (L.) Gould - FR NL SL SE
Elymus scabrus (Labill.) A.Löve - NU FR EA EP NL MU YP SL KI SE
Elytrigia elongata (Host ex P.Beauv.) Nevski = *Elymus elongatus*
Elytrigia juncea (L.) Nevski = *Elymus farctus*
Elytrigia junceaformis A.& D.Löve = *Elymus farctus*
Elytrigia repens (L.) Nevski = *Elymus repens*
Elytrophorus articulatus P.Beauv. = *Elytrophorus spicatus*
Elytrophorus spicatus (Willd.) A.Camus - LE
Enneapogon lindleyanus sensu Jessop (1978) = *Enneapogon oblongus*
Enneapogon avenaceus (Lindley) C.E.Hubb. - NW LE NU GT FR EA EP MU
Enneapogon caerulescens (Gaudich.) N.Burb. - NW LE NU GT FR EA
Enneapogon clelandii N.Burb. - NW
Enneapogon cylindricus N.Burb. - NW LE NU GT FR EA EP
Enneapogon intermedius N.Burb. - NW LE GT FR EP
Enneapogon lindleyanus (Domin) C.E.Hubb. - not in S.Aust.
Enneapogon nigricans (R.Br.) P.Beauv. - NW LE GT FR EA EP NL MU YP SL SE
Enneapogon oblongus N.Burb. - NW FR
Enneapogon polyphyllus (Domin) N.Burb. - NW LE NU GT FR EA EP MU
Enteropogon acicularis (Lindley) Lazarides - NW LE NU GT FR EA EP NL MU SL
Eragrostis australasica (Steudel) C.E.Hubb. - LE GT FR EA EP NL MU SL
 **Eragrostis barrelieri* Daveau - NW LE GT FR EA NL MU
Eragrostis basedowii Jedwabn. - LE GT FR EA
Eragrostis benthamii Mattei - NL SL SE
Eragrostis brownii (Kunth) Nees ex Steudel var. *patens* Benth. = *Eragrostis benthamii*
Eragrostis brownii sensu Jessop (1978) = *Eragrostis benthamii*
Eragrostis chaetophylla Steudel = *Eragrostis setifolia*
 **Eragrostis cilianensis* (All.) Vign. ex Janchen - NW LE GT FR EA EP NL MU YP SL SE
Eragrostis clelandii S.T.Blake = *Eragrostis lanipes*
Eragrostis concinna sensu Benth. (1878) = *Eragrostis basedowii*
Eragrostis confertiflora (J.Black) J.Black - LE
 **Eragrostis curvula* (Schrader) Nees - EP MU YP SL SE
Eragrostis diandra (R.Br.) Steudel = *Eragrostis elongata*
Eragrostis dielsii Pilger var. *dielsii* Pilger - NW LE NU GT FR EA EP MU YP SL
Eragrostis elongata (Willd.) Jacq.f. - LE NL MU SL SE
Eragrostis eriopoda Benth. - NW LE NU GT FR EA EP
Eragrostis falcata (Gaudich.) Benth. - NW LE NU GT FR EA EP MU
Eragrostis falcata sensu Benth. (1878) = *Eragrostis dielsii* var. *dielsii*
Eragrostis infecunda J.Black - FR NL MU SL SE
Eragrostis interrupta P.Beauv. var. *densiflora* J.Black = *Eragrostis confertiflora*
Eragrostis interrupta P.Beauv. var. *tenuissima* Stapf ex Hook.f. = *Eragrostis japonica*
Eragrostis japonica (Thunb.) Trin. - not in S.Aust.
Eragrostis japonica sensu Jessop (1978) = *Eragrostis tenellula*
Eragrostis kennedyae F.Turner - LE GT
Eragrostis lacunaria F.Muell. ex Benth. - NW MU
Eragrostis laniflora Benth. - NW LE NU GT EA EP
Eragrostis lanipes C.E.Hubb. - NW NU GT
Eragrostis leptocarpa Benth. - NW LE GT FR EA
Eragrostis major Host = *Eragrostis cilianensis*
Eragrostis megastachya (Koel.) Link = *Eragrostis cilianensis*
 **Eragrostis mexicana* (Hornem.) Link - SL
 **Eragrostis minor* Host - FR EA YP SE
Eragrostis parviflora (R.Br.) Trin. - NW LE GT FR EA EP NL MU YP SL
Eragrostis pellucida (R.Br.) Steudel = *Eragrostis parviflora*
 **Eragrostis pergracilis* S.T.Blake - NW ?LE EA
Eragrostis philippica Jedwabn. = *Eragrostis benthamii*
 **Eragrostis pilosa* (L.) P.Beauv. - SE
Eragrostis pilosa sensu Benth. (1878) = *Eragrostis parviflora*

91.495 GRAMINEAE (contd)

- Eragrostis poaeoides* P.Beauv. = *Eragrostis minor*
Eragrostis rankingii Bailey = *Eragrostis lacunaria*
Eragrostis rara Domin = *Eragrostis benthamii*
Eragrostis setifolia Nees - NW LE GT FR EA EP MU
Eragrostis speciosa (Roemer & Schultes) Steudel - LE
 **Eragrostis superba* Peyr. - SL
Eragrostis tenella sensu Benth. (1878) = *Eragrostis japonica*
 **Eragrostis tenellula* (Kunth) Steudel - NW LE EA
Eragrostis trichophylla Benth. = *Eragrostis falcata*
Eragrostis xerophila Domin - NW LE GT FR EA EP MU
Eriachne aristidea F.Muell. - LE SE
Eriachne benthamii Hartley = *Eriachne ovata*
Eriachne helmsii (Domin) Hartley - NW LE NU GT EP
Eriachne isingiana J.Black = *Eriachne pulchella*
Eriachne mucronata R.Br. - NW LE GT FR
Eriachne mucronata R.Br. var. *helmsii* Domin = *Eriachne helmsii*
Eriachne mucronata sensu J.Black (1943) = *Eriachne helmsii*
Eriachne ovata Nees - LE
Eriachne ovata Nees var. *pallida* Benth. = *Eriachne ovata*
Eriachne ovata Nees var. *pedicellata* sensu J.Black (1943) = *Eriachne mucronata*
Eriachne pulchella Domin - NW LE
Eriachne scleranthoides sensu Benth. (1878) = *Eriachne mucronata*
Eriochloa australiensis Stapf ex Thell. - LE GT FR EA EP MU SL
Eriochloa crebra S.T.Blake - LE
Eriochloa longiflora S.T.Blake = *Eriochloa australiensis*
Eriochloa procera (Retz.) C.E.Hubb. - LE
Eriochloa pseudoacrotricha (Stapf ex Thell.) J.Black - LE GT FR EA EP NL MU SL
Eriochloa punctata (L.) Ham. var. *acrotricha* sensu J.Black (1943) =
 Eriochloa pseudoacrotricha
Eriochloa ramosa Kuntze var. *pseudoacrotricha* Stapf ex Thell. =
 Eriochloa pseudoacrotricha
Eulalia fulva (R.Br.) Kuntze - NW LE GT FR EA MU
 **Eustachys distichophylla* (Lagasca) Nees - NL SL
 **Festuca arundinacea* Schreber - MU SL SE
Festuca asperula Vick. - not in S.Aust.
Festuca asperula sensu H.Eichler (1965) = *Festuca rubra*
Festuca barbata L. = *Schismus barbatus*
Festuca benthamiana Vick. - FR SL
Festuca bromoides L. = *Vulpia bromoides*
Festuca calycina Loeffl. = *Schismus barbatus*
Festuca ciliata Pers. = *Vulpia ciliata*
Festuca cristata L. = *Lophochloa cristata*
Festuca duriuscula L. = *Festuca rubra*
Festuca duriuscula L. var. *aristata* Benth. = *Festuca benthamiana*
Festuca elatior sensu J.Black (1943) = *Festuca pratensis*
Festuca fasciculata Forsskal = *Vulpia fasciculata*
Festuca fusca L. = *Diplachne fusca*
Festuca littoralis Labill. - EP YP SL KI SE
Festuca loliiiformis F.Muell. = *Tripogon loliiiformis*
Festuca megalura Nutt. = *Vulpia megalura*
Festuca muralis Kunth = *Vulpia muralis*
Festuca myuros L. = *Vulpia myuros*
Festuca phleoides Villars = *Lophochloa cristata*
 **Festuca pratensis* Hudson - SL
Festuca reptatrix L. = *Diplachne fusca*
Festuca rigida (L.) Rasp. = *Desmazeria rigida*
 **Festuca rubra* L. - ?NL YP SL
Festuca scabra Labill. = *Elymus scabrus*
Festuca sciuroides Roth = *Vulpia bromoides*
Festuca unioides Willd. = *Bromus catharticus*
 **Gastridium phleoides* (Nees & Meyen) C.E.Hubb. - FR EP NL MU SL SE
Gastridium ventricosum sensu J.Black (1943) = *Gastridium phleoides*
Glyceria australasica Steudel = *Eragrostis australasica*
Glyceria australis C.E.Hubb. - FR MU SL KI SE

91.495 GRAMINEAE (contd)

- **Glyceria declinata* Bréb. - FR ?NL
Glyceria distans (L.)Wahlenb. = *Puccinellia distans*
Glyceria fluitans sensu H.Eichler (1965) = *Glyceria australis*
Glyceria fordeana (F.Muell.)Benth. = *Poa fordeana*
Glyceria ramigera (F.Muell.)Benth. = *Eragrostis australasica*
Glyceria stricta Hook.f. = *Puccinellia stricta*
- **Hainardia cylindrica* (Willd.)Greuter - LE NL MU YP SL KI SE
Hemarthria compressa sensu Benth. (1878) = *Hemarthria uncinata*
Hemarthria uncinata R.Br. - EP MU SL KI SE
Holcus avenaceus Scop. = *Arrhenatherum elatius* ssp. *bulbosum*
Holcus bicolor L. = *Sorghum bicolor*
Holcus halepensis L. = *Sorghum halepense*
- **Holcus lanatus* L. - MU SL SE
- **Holcus setiglumis* Boiss. & Reuter - SL KI
Hordeum geniculatum All. = *Hordeum hystrix*
- **Hordeum glaucum* Steudel - NW LE NU FR EA EP NL MU YP SL SE
Hordeum hexastichon L. = *Hordeum vulgare* var. *vulgare*
Hordeum hystrix (Roth)A.Löve = *Hordeum hystrix*
- **Hordeum hystrix* Roth - NU NL YP SL SE
- **Hordeum leporinum* Link - LE NU GT FR EA EP NL MU YP SL KI SE
Hordeum leporinum Link ssp. *glaucum* (Steudel)Booth & Richards = *Hordeum glaucum*
Hordeum leporinum sensu J.Black (1943), partly = *Hordeum glaucum*
Hordeum marinum (Hudson)A.Löve = *Hordeum marinum*
- **Hordeum marinum* Hudson - FR EP NL MU YP SL KI SE
Hordeum maritimum With. = *Hordeum marinum*
Hordeum murinum (L.)A.Löve ssp. *leporinum* (Link)A.Löve = *Hordeum leporinum*
Hordeum murinum L. ssp. *glaucum* (Steudel)Tzvelev = *Hordeum glaucum*
Hordeum murinum L. var. *leporinum* (Link)Arcang. = *Hordeum leporinum*
Hordeum murinum sensu J.Black (1943) = *Hordeum leporinum*
Hordeum vulgare L. ssp. *distichon* (L.)Koern. = *Hordeum vulgare* var. *distichon*
- **Hordeum vulgare* L. var. *distichon* (L.)Hook.f. - LE NU FR EP NL MU SL SE
Hordeum vulgare L. var. *hexastichon* (L.)Asch. = *Hordeum vulgare* var. *vulgare*
- **Hordeum vulgare* L. var. *vulgare* - MU SL SE
- **Hyparrhenia hirta* (L.)Stapf - SL
Ichnanthus australiensis (Domin)Hughes = *Yakirra australiensis*
Imperata arundinacea Cyr., partly = *Imperata cylindrica* var. *major*
Imperata cylindrica (L.)Racuschel var. *major* (Nees)C.E.Hubb. - LE NL MU SL SE
Imperata koenigii (Retz.)P.Beauv. var. *major* Nees = *Imperata cylindrica* var. *major*
Isachne australis R.Br. = *Isachne globosa*
Isachne globosa (Thunb.)Kuntze - NL SL
Ischaemum secundatum Walter = *Stenotaphrum secundatum*
Iseilema actinostachys Domin = *Iseilema membranaceum*
Iseilema eremaum S.T.Blake - NW LE FR
Iseilema membranaceum (Lindley)Domin - LE NU GT FR
Iseilema mitchellii Andersson = *Iseilema membranaceum*
Iseilema vaginiflorum Domin - LE GT
Koeleria michelii (Savi)Cosson = *Avellinia michelii*
Koeleria phleoides (Villars)Pers. = *Lophochloa cristata*
Lachnagrostis phleoides Nees & Meyen = *Gastridium phleoides*
Lagurus cylindricus L., partly = *Imperata cylindrica* var. *major*
- **Lagurus ovatus* L. - NU EP NL MU YP SL KI SE
- **Lamarckia aurea* (L.)Moench - FR EA EP NL MU SL
Leptochloa digitata (R.Br.)Domin - LE EA SE
Leptochloa subdigitata Trin. = *Leptochloa digitata*
Lepturus cylindricus (Willd.)Trin. = *Hainardia cylindrica*
Lepturus incurvatus Trin. = *Parapholis incurva*
Lepturus pannonicus (Host)Kunth = *Pholiurus pannonicus*
Lolium arvense With. = *Lolium temulentum* forma *arvense*
- **Lolium ×hybridum* Hausskn. - SE
Lolium italicum A.Braun = *Lolium multiflorum*
Lolium linicola Sonder = *Lolium remotum*
- **Lolium loliaceum* (Bory & Chaub.)Hand-Mazz. - FR EP MU SL KI
- **Lolium multiflorum* Lam. - SL
- **Lolium perenne* L. - FR NL MU YP SL SE

91.495 GRAMINEAE (contd)

Lolium perenne L. var. *multiflorum* Parnell = *Lolium multiflorum*

**Lolium remotum* Schrank - not in S.Aust.

**Lolium rigidum* Gaudin - LE NU GT FR EA EP NL MU YP SL KI SE

Lolium rigidum Gaudin ssp. *lepturoides* (Boiss.) Senney & Mauricio = *Lolium loliaceum*

Lolium rigidum Gaudin var. *rottboellioides* Heldr. ex Boiss. = *Lolium loliaceum*

Lolium subulatum Vis. = *Lolium loliaceum*

Lolium subulatum sensu J.Black (1943) = *Lolium rigidum*

**Lolium temulentum* L. forma *arvense* (With.) Junge - EP SL SE

**Lolium temulentum* L. forma *temulentum* - NL SL KI SE

Lolium temulentum L. var. *leptochaeton* A.Braun = *Lolium temulentum* forma *arvense*

**Lophochloa cristata* (L.) Hylander - NU FR EA EP NL MU YP SL KI SE

Lophochloa phleoides (Villars) Reichb. = *Lophochloa cristata*

**Lophochloa pumila* (Desf.) Bor - LE NU GT FR EA EP NL MU YP SL SE

Lophopyrum elongatum (Host) A.Löve = *Elymus elongatus*

**Melica ciliata* L. - ?SL

Microlaena stipoides (Labill.) R.Br. var. *stipoides* - FR NL MU SL KI SE

Milium globosum Thunb. = *Isachne globosa*

**Miscanthus sinensis* Anders. - MU

Molineria minuta (L.) Parl. = *Molineriella minuta*

**Molineriella minuta* (L.) Rouy - FR MU SL SE

Monachather paradoxum Steudel - NW LE GT EA EP

Monerma cylindrica (Willd.) Cosson & Durieu = *Hainardia cylindrica*

Nardus aristata L. = *Psilurus incurvus*

Nardus incurvus Gouan = *Psilurus incurvus*

Neurachne alopecuroides R.Br. - FR EA EP NL MU YP SL KI SE

Neurachne clementii Domin = *Paraneurachne muelleri*

Neurachne lanigera S.T.Blake - NW

Neurachne mitchelliana Nees = *Thyridolepis mitchelliana*

Neurachne muelleri Hackel = *Paraneurachne muelleri*

Neurachne multiculmis Pilger = *Thyridolepis multiculmis*

Neurachne munroi (F.Muell.) F.Muell. - NW LE NU GT

Neurachne paradoxa R.Br. = *Zygochloa paradoxa*

Neurachne xerophila Domin = *Thyridolepis xerophila*

Notodanthonia auriculata (J.Black) Zotov = *Danthonia auriculata*

Notodanthonia caespitosa (Gaudich.) Zotov = *Danthonia caespitosa*

Notodanthonia carphoides (F.Muell.) Zotov = *Danthonia carphoides* var. *carphoides*

Notodanthonia geniculata (J.Black) Zotov = *Danthonia geniculata*

Notodanthonia laevis (Vick.) Zotov = *Danthonia laevis*

Notodanthonia pilosa (R.Br.) Zotov = *Danthonia pilosa* var. *pilosa*

Notodanthonia purpurascens (Vick.) Zotov = *Danthonia tenuior*

Notodanthonia racemosa (R.Br.) Zotov = *Danthonia racemosa* var. *racemosa*

Notodanthonia semiannularis (Labill.) Zotov = *Danthonia semiannularis*

Notodanthonia tenuior (Steudel) S.T.Blake = *Danthonia tenuior*

Oplismenus crus-pavonis Kunth = *Echinochloa crus-pavonis*

Oryzopsis miliacea (L.) Benth. & Hook.f. ex Asch. & Schweinf. = *Piptatherum miliaceum*

Oxychloris scariosa (F.Muell.) Lazarides - LE EA

Panicum adscendens Kunth = *Digitaria ciliaris*

Panicum adspersum sensu Benth. (1878) = *Brachiaria praetervisa*

Panicum aequiglume Hackel & Arech. = *Digitaria aequiglumis*

Panicum ammophilum sensu F.Muell. (1855) = *Digitaria ammophila*

Panicum asperum C.König = *Pseudoraphis spinescens*

Panicum australiense Domin = *Yakirra australiensis*

Panicum brownii Roemer & Schultes = *Digitaria brownii*

**Panicum capillare* L. - NL MU YP SL SE

Panicum ciliare Retz. = *Digitaria ciliaris*

Panicum clementii Domin = *Paspalidium clementii*

Panicum coenicolum F.Muell. = *Digitaria coenicola* var. *coenicola*

Panicum colonum L. = *Echinochloa colona*

**Panicum coloratum* L. - MU

Panicum constrictum Domin = *Paspalidium constrictum*

Panicum convallium F.Muell. = *Panicum effusum* var. *effusum*

Panicum crus-galli L. = *Echinochloa crus-galli*

Panicum ctenanthum F.Muell. = *Digitaria ctenantha*

Panicum dactylon L. = *Cynodon dactylon*

91.495 GRAMINEAE (contd)

- Panicum decompositum* R.Br. - NW LE GT FR EA EP MU NL SL
Panicum distachyum sensu Benth. (1878) = *Brachiaria subquadriflora*
Panicum divaricatissimum R.Br. = *Digitaria divaricatissima*
Panicum divaricatissimum R.Br. var. *ammophilum* Benth. = *Digitaria ammophila*
Panicum effusum R.Br. var. *effusum* - NW LE NU GT FR EA EP NL MU YP SL SE
Panicum flavidum sensu Benth. (1878) = *Paspalidium jubiflorum*
Panicum geniculatum Lam. = *Setaria gracilis* var. *pauciseta*
Panicum gilesii Benth. = *Brachiaria gilesii*
Panicum gracile R.Br. = *Paspalidium gracile*
Panicum helopus sensu Benth. (1878) = *Brachiaria notochthona*
Panicum ischaemum Schreber = *Digitaria ischaemum*
Panicum italicum L. = *Setaria italica*
Panicum jubiflorum Trin. = *Paspalidium jubiflorum*
Panicum lacunarium F.Muell. = *Echinochloa lacunaria*
Panicum laevifolium Hackel = *Panicum schinzii*
Panicum laevifolium Hackel var. *contractum* Pilger = *Panicum schinzii*
Panicum laevinode Lindley - NW LE FR EA
Panicum leucophaeum Kunth var. *monostachyum* Benth. = *Digitaria brownii*
 **Panicum milliaceum* L. - NL SL SE
Panicum miliiforme J.S.Presl ex C.Presl = *Brachiaria subquadriflora*
Panicum munroi F.Muell. = *Neurachne munroi*
Panicum notochthonum Domin = *Brachiaria notochthona*
Panicum paractaenium Kunth = *Paractaenium novae-hollandiae*
Panicum pauciflorum R.Br. var. *fastigiatum* Benth. = *Yakirra australiensis*
Panicum piligerum F.Muell. ex Benth. = *Brachiaria piligera*
Panicum praetervisum Domin = *Brachiaria praetervisum*
Panicum prolutum F.Muell. - FR EP NL MU YP SL SE
Panicum pumila Poiret = *Setaria pumila* ssp. *pumila*
Panicum reversum F.Muell. = *Paractaenium novae-hollandiae*
Panicum sanguinale L. = *Digitaria sanguinalis*
 **Panicum schinzii* Hackel - SL SE
Panicum spinescens R.Br. = *Pseudoraphis spinescens*
Panicum subquadriflorum Trin. = *Brachiaria subquadriflora*
Panicum verticillatum L. = *Setaria verticillata*
Panicum viride L. = *Setaria viridis*
Panicum whitei J.Black = *Panicum laevinode*
Pappophorum avenaceum T.L.Mitchell = *Enneapogon avenaceus*
Pappophorum caerulescens Gaudich. = *Enneapogon caerulescens*
Pappophorum lindleyanum Domin = *Enneapogon lindleyanus*
Pappophorum lindleyanum Domin var. *glaucum* Domin = *Enneapogon oblongus*
Pappophorum nigricans R.Br. = *Enneapogon nigricans*
Pappophorum nigricans R.Br. var. *barbinode* Domin = *Enneapogon oblongus*
Pappophorum nigricans R.Br. var. *pallidum* sensu Domin (1915) = *Enneapogon polyphyllus*
Pappophorum nigricans R.Br. var. *polyphyllus* Domin = *Enneapogon polyphyllus*
Paractaenium novae-hollandiae P.Beauv. - NW LE NU GT FR EA EP
Paraneurachne muelleri (Hackel) S.T.Blake - NW LE
 **Parapholis incurva* (L.) C.E.Hubb. - LE NU FR EP NL MU YP SL KI SE
Parapholis strigosa (Dumort.) C.E.Hubb. - not in S.Aust.
Paspalidium basicladum Hughes - NW LE NU GT FR EA EP NL
Paspalidium clementii (Domin) C.E.Hubb. - NW LE NU FR EP MU
Paspalidium constrictum (Domin) C.E.Hubb. - NW LE NU GT FR EA EP NL MU YP SL
Paspalidium gracile (R.Br.) Hughes - ?NU ?GT
Paspalidium gracile (R.Br.) Hughes var. *rugosum* Hughes = *Paspalidium constrictum*
Paspalidium gracile sensu J.Black (1943), partly = *Paspalidium basicladum*
Paspalidium gracile sensu J.Black (1943), partly = *Paspalidium clementii*
Paspalidium jubiflorum (Trin.) Hughes - LE GT FR NL MU SL KI SE
 **Paspalum dilatatum* Poiret - FR EP NL MU YP SL KI SE
 **Paspalum distichum* L. - EP NL MU YP SL SE
Paspalum distichum sensu Jessop (1978) = *Paspalum vaginatum*
Paspalum paspalodes (Michaux) Scribn. = *Paspalum distichum*
 **Paspalum vaginatum* Sw. - EP MU YP SL SE
Pennisetum alopecuroides (L.) Sprengel - not in S.Aust.
Pennisetum alopecuroides sensu Jessop (1978) = *Pennisetum setaceum*
Pennisetum cenchroides L.Rich. = *Cenchrus ciliaris*

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- Pennisetum ciliare* (L.) Link = *Cenchrus ciliaris*
 **Pennisetum clandestinum* Hochst. ex Chiov. - FR EP MU YP SL KI SE
 **Pennisetum macrourum* Trin. - SL SE
Pennisetum pauciflorum Benth. = *Cenchrus incertus*
Pennisetum refractum (F.Muell.) F.Muell. = *Plagiosetum refractum*
 **Pennisetum setaceum* (Forsskal) Chiov. - FR EP NL MU SL SE
 **Pennisetum villosum* R.Br. ex Fresen. - FR EP NL MU YP SL KI SE
Pentameris airoides Nees = *Pentaschistis airoides*
Pentapogon billardieri R.Br. = *Pentapogon quadrifidus*
Pentapogon quadrifidus (Labill.) Baillon - SL SE
 **Pentaschistis airoides* (Nees) Stapf - FR EP MU SL SE
 **Pentaschistis thunbergii* (Kunth) Stapf - NL MU SL SE
Periballia minuta (L.) Asch. & Graebner = *Molineriella minuta*
Perotis rara R.Br. - NW ?LE
 **Phalaris aquatica* L. - NL SL SE
 **Phalaris arundinacea* L. - SL SE
 **Phalaris canariensis* L. - FR NL SL
 **Phalaris minor* Retz. - LE FR EA EP NL MU YP SL KI SE
 **Phalaris paradoxa* L. - EA EP NL MU SL KI SE
Phalaris semiverticillata Forsskal = *Polypogon viridis*
Phalaris setacea Forsskal = *Pennisetum setaceum*
Phalaris stenoptera Hackel = *Phalaris aquatica*
Phalaris tuberosa L. var. *stenoptera* (Hackel) A.S.Hitchc. = *Phalaris aquatica*
 **Phleum pratense* L. - SL SE
Pholurus incurvus (L.) Schinz & Thell. = *Parapholis incurva*
 **Pholurus pannonicus* (Host) Trin. - NL YP SL
Phragmites australis (Cav.) Trin. ex Steudel - LE FR EA NL MU SL SE
Phragmites communis Trin. = *Phragmites australis*
Phragmites karka (Retz.) Trin. ex Steudel - LE
Phragmites vulgaris (Lam.) Crepin = *Phragmites australis*
 **Piptatherum miliaceum* (L.) Cosson - FR EP NL MU YP SL SE
 **Plagiochloa acutiflora* (Nees) Adamson & Sprague - SE
Plagiosetum refractum (F.Muell.) Benth. - NW LE NU GT FR
Plectrachne helmsii C.E.Hubb. - NW LE
Plectrachne melvillei C.E.Hubb. - NW
Plinthanthesis tenuior Steudel = *Danthonia tenuior*
 **Poa annua* L. - LE FR EP NL MU YP SL KI SE
Poa australis R.Br. var. *billardieri* Hook.f. = *Poa poiformis*
Poa australis sensu J.Black (1943) = *Poa poiformis*
Poa billardieri Steudel = *Poa labillardieri* var. *labillardieri*
 **Poa bulbosa* L. - FR EP NL MU YP SL KI SE
Poa caespitosa Forster var. *tenera* (F.Muell.) Benth. = *Poa tenera*
Poa cilianensis All. = *Eragrostis cilianensis*
Poa clelandii Vick. - EP NL MU ?YP SL SE
Poa crassicaudex Vick. - FR EP NL MU YP SL KI SE
Poa curvula Schrader = *Eragrostis curvula*
Poa diandra R.Br. = *Eragrostis elongata*
Poa digitata R.Br. = *Leptochloa digitata*
Poa distans L. = *Puccinellia distans*
Poa divaricata Gouan = *Sphenopus divaricatus*
Poa drummondiana Nees - EP NL MU YP SL
Poa elongata Willd. = *Eragrostis elongata*
Poa exilis Vick. = *Poa meionectes*
Poa fasciculata Torrey = *Puccinellia fasciculata*
Poa fax J.H.Willis & Court - EP YP SL KI SE
Poa fordeana F.Muell. - LE FR EA EP MU SL
Poa halmaturina J.Black - SL KI SE
Poa humifusa J.Black = *Poa tenera*
Poa japonica Thunb. = *Eragrostis japonica*
Poa labillardieri Steudel var. *labillardieri* - FR EP NL MU YP SL SE
Poa laevis R.Br. = *Poa poiformis*
Poa lepida sensu F.Muell. (1873) = *Poa fax*
Poa megastachya Koel. = *Eragrostis cilianensis*
Poa meionectes Vick. - SE

91.495 GRAMINEAE (contd)

- Poa mexicana* Hornem. = *Eragrostis mexicana*
Poa morrisii Vick. - SE
Poa nodosa Nees = *Poa drummondiana*
Poa parviflora R.Br. = *Eragrostis parviflora*
Poa pellucida R.Br. = *Eragrostis parviflora*
Poa pilosa L. = *Eragrostis pilosa*
Poa poaeformis (Labill.)Druce = *Poa poiformis*
Poa poiformis (Labill.)Druce - ?FR EP NL MU YP SL KI SE
**Poa pratensis* L. - ?FR SL KI SE
Poa ramigera (F.Muell.)Benth. = *Eragrostis australasica*
Poa rigida L. = *Desmazeria rigida*
Poa rodwayi Vick. - ?SE
Poa speciosa Roemer = *Eragrostis speciosa*
Poa syrtica F.Muell. = *Puccinellia stricta*
Poa tenellula Kunth = *Eragrostis tenellula*
Poa tenera F.Muell. ex Hook.f. - EP SL KI SE
Poa umbricola Vick. - SL
Pollinia fulva (R.Br.)Benth. = *Eulalia fulva*
Polypogon littorale Smith = *Agropogon littoralis*
Polypogon littoralis Smith = *Agropogon littoralis*
**Polypogon maritimus* Willd. - FR EA EP NL MU YP SL KI SE
**Polypogon monspeliensis* (L.)Desf. - LE FR EA EP NL MU YP SL KI SE
Polypogon semiverticillatus (Forsskal)N.Hylander = *Polypogon viridis*
**Polypogon viridis* (Gouan)Breistr. - FR EA EP NL SL SE
Pseudoraphis aspera Pilger = *Pseudoraphis spinescens*
Pseudoraphis spinescens (R.Br.)Vick. - LE NL MU SL SE
Psilurus aristatus (L.)Duval-Jouve = *Psilurus incurvus*
**Psilurus incurvus* (Gouan)Schinz & Thell. - NL SL
Psilurus nardoides Trin. = *Psilurus incurvus*
**Puccinellia distans* (L.)Parl. - ?NL MU SL SE
**Puccinellia fasciculata* (Torrey)Bickn. - MU YP SE
Puccinellia stricta (Hook.f.)C.H.Blom - EP NL MU YP SL KI SE
**Rhynchelytrum repens* (Willd.)C.E.Hubb. - ?NW EP
Rottboellia cylindrica Willd. = *Hainardia cylindrica*
Rottboellia loliacea Bory & Chaub. = *Lolium loliaceum*
Rottboellia pannonica Host = *Pholiurus pannonicus*
Rottboellia truncata Maiden & Betcher = *Uranthoecium truncatum*
Rytidosperma auriculatum (J.Black)Connor & Edgar = *Danthonia auriculata*
Rytidosperma caespitosum (Gaudich.)Connor & Edgar = *Danthonia caespitosa*
Rytidosperma carphoides (F.Muell. ex Benth.)Connor & Edgar =
Danthonia carphoides var. *carphoides*
Rytidosperma carphoides (F.Muell. ex Benth.)Connor & Edgar
var. *angustius* (Vick.)Connor & Edgar = *Danthonia carphoides* var. *angustior*
Rytidosperma clelandii (Vick.)Connor & Edgar = *Danthonia clelandii*
Rytidosperma duttonianum (Cashm.)Connor & Edgar = *Danthonia duttoniana*
Rytidosperma erianthum (Lindley)Connor & Edgar = *Danthonia eriantha*
Rytidosperma geniculatum (J.Black)Connor & Edgar = *Danthonia geniculata*
Rytidosperma laevis (Kunth)Connor & Edgar = *Danthonia laevis*
Rytidosperma linkii (Kunth)Connor & Edgar = *Danthonia linkii* var. *linkii*
Rytidosperma linkii L.(Kunth)Connor & Edgar var. *fulvum* (Vick.)Connor & Edgar =
Danthonia linkii var. *fulva*
Rytidosperma pilosum (R.Br.)Connor & Edgar = *Danthonia pilosa* var. *pilosa*
Rytidosperma pilosum (R.Br.)Connor & Edgar var. *paleaceum* (Vick.)Connor & Edgar =
Danthonia pilosa var. *paleacea*
Rytidosperma racemosum (R.Br.)Connor & Edgar = *Danthonia racemosa* var. *racemosa*
Rytidosperma richardsonii (Cashm.)Connor & Edgar = *Danthonia richardsonii*
Rytidosperma semiannulare (Labill.)Connor & Edgar = *Danthonia semiannularis*
Rytidosperma setaceum (R.Br.)Connor & Edgar = *Danthonia setacea* var. *setacea*
Rytidosperma tenuius (Steudel)A.Hansen & Sunding = *Danthonia tenuior*
Saccharum fulvum R.Br. = *Eulalia fulva*
Saccharum repens Willd. = *Rhynchelytrum repens*
Schedonorus littoralis (Labill.)P.Beauv. = *Festuca littoralis*
**Schismus arabicus* Nees - LE NU EP
**Schismus barbatus* (L.)Thell. - LE NU GT FR EA EP NL MU YP SL KI SE

91.495 GRAMINEAE (contd)

- Schismus calycinus* (Loefl.) C. Koch = *Schismus barbatus*
Schismus marginatus P. Beauv. = *Schismus barbatus*
 * *Sclerochloa dura* (L.) P. Beauv. - NL YP
Sclerochloa rigida (L.) Link = *Desmazeria rigida*
Scleropoa rigida (L.) Griseb. = *Desmazeria rigida*
 * *Secale cereale* L. - GT MU YP SL
Serrafalcus arenarius (Labill.) C. Gardner = *Bromus arenarius*
Serrafalcus hordeaceus (L.) Gren. & Godron = *Bromus hordeaceus* ssp. *hordeaceus*
Serrafalcus lanceolatus (Roth) Parl. = *Bromus lanceolatus*
Serrafalcus macrostachys (Desf.) Parl. = *Bromus lanceolatus*
Serrafalcus mollis (L.) Parl. = *Bromus hordeaceus* ssp. *hordeaceus*
Setaria dielsii R. Herrm. - NW LE FR EA NL
Setaria geniculata (Lam.) P. Beauv. = *Setaria gracilis* var. *pauciseta*
Setaria geniculata (Lam.) P. Beauv. var. *pauciseta* Desv. = *Setaria gracilis* var. *pauciseta*
Setaria glauca sensu Jessop (1978) = *Setaria pumila* ssp. *pumila*
 * *Setaria gracilis* Kunth var. *pauciseta* (Desv.) B. Simon - MU SL SE
 * *Setaria italica* (L.) P. Beauv. - NW FR NL MU SL SE
Setaria macrostachya sensu J. Black (1943) = *Setaria dielsii*
 * *Setaria palmifolia* (König) Stapf - SL SE
 * *Setaria pumila* (Poir.) Schultes ssp. *pumila* - NL MU SL
Setaria refracta F. Muell. = *Plagiosetum refractum*
 * *Setaria verticillata* (L.) P. Beauv. - LE FR EP NL MU YP SL KI SE
 * *Setaria viridis* (L.) P. Beauv. - NW NL MU SL SE
 * *Sorghum × alnum* Parodi - ?NW
 * *Sorghum bicolor* (L.) Moench - NW ?NU FR ?EP ?SL
 * *Sorghum halepense* (L.) Pers. - LE EA NL MU YP SL KI SE
 * *Sorghum vulgare* Pers. - ?MU ?SL
 * *Spartina × townsendii* Groves & J. Groves - SL
 * *Sphenopus divaricatus* (Gouan) Reichb. - NL YP SL
Sphenopus gouanii Trin. = *Sphenopus divaricatus*
Spinifex hirsutus sensu Jessop (1978) = *Spinifex sericeus*
Spinifex paradoxa (R. Br.) Benth. = *Zygochloa paradoxa*
Spinifex sericeus R. Br. - NU EP YP SL KI SE
Sporobolus actinocladius (F. Muell.) F. Muell. - NW LE GT FR EA EP
Sporobolus africanus (Poir.) F. Robyns & Tournay = *Sporobolus indicus* var. *africanus*
Sporobolus australasicus Domin - not in S. Aust.
Sporobolus australasicus sensu Jessop (1978) = *Sporobolus actinocladius*
Sporobolus benthamii Bailey = *Sporobolus mitchellii*
Sporobolus blakei J. de Nardi - NW LE
Sporobolus capensis (Willd.) Kunth = *Sporobolus indicus* var. *africanus*
Sporobolus caroli Mez - LE GT FR SL
Sporobolus creber J. de Nardi - ?MU
Sporobolus elongatus R. Br. - not in S. Aust.
 * *Sporobolus indicus* (L.) R. Br. var. *africanus* (Poir.) Jovet & Guedes -
 ?LE MU SL KI SE
Sporobolus lindleyi sensu Benth (1878) = *Sporobolus caroli*
Sporobolus mitchellii (Trin.) C. E. Hubb. ex S. T. Blake - NW LE GT MU SL
Sporobolus virginicus (L.) Kunth - LE NU FR EP NL MU YP SL KI SE
Sporobolus virginicus (L.) Kunth var. *minor* Bailey ex B. Simon -
 distribution not available
Sporobolus virginicus (L.) Kunth var. *pallidus* Benth. = *Sporobolus mitchellii*
Sporobolus virginicus (L.) Kunth var. *virginicus* - distribution not available
Stenotaphrum americanum Schrank = *Stenotaphrum secundatum*
 * *Stenotaphrum secundatum* (Walter) Kuntze - MU YP SL KI SE
Stipa acrociliata Reader - NU FR EP NL MU YP SL SE
Stipa acrociliata Reader var. *minor* Reader = *Stipa platychaeta*
Stipa aphanoneura Hughes = *Stipa flavescens*
Stipa arachnopus Pilger = *Stipa puberula*
Stipa aristiglumis sensu J. Black (1943) = *Stipa gibbosa*
Stipa bigeniculata Hughes - not in S. Aust.
Stipa bigeniculata sensu J. Black (1943) = *Stipa curticomma*
Stipa blackii C. E. Hubb. - FR EA EP NL MU SL SE
Stipa brachystephana S. T. Blake = *Stipa setacea*
Stipa breviglumis J. Black - FR EP NL SL

91.495 GRAMINEAE (contd)

- Stipa clelandii* Summerh. & C.E.Hubb. = *Stipa blackii*
Stipa compacta Hughes = *Stipa flavescens*
Stipa compressa R.Br. var. *lachnocolea* Benth. = *Stipa macalpinei*
Stipa congesta Summerh. & C.E.Hubb. = *Stipa densiflora*
Stipa curticomis Vick. - EP NL MU YP SL KI SE
Stipa densiflora Hughes - FR EA SL
Stipa drummondii Steudel - NU FR EA EP NL MU YP SL SE
Stipa dura J.Black = *Stipa eremophila*
Stipa echinata Vick., S.W.L.Jacobs & Everett - EP MU YP SL SE
Stipa effusa Hughes = *Stipa nodosa*
Stipa elatior (Benth.) Hughes = *Stipa flavescens*
Stipa elegantissima Labill. - NU FR EA EP NL MU YP SL KI
Stipa eremophila Reader - ?NW NU GT FR EA EP NL MU YP SL SE
Stipa eremophila Reader var. *dodrantaria* J.Black = *Stipa plumigera*
Stipa eriopus Benth. = *Stipa tenuifolia*
Stipa exilis Vick. - EP NL MU YP SL KI SE
Stipa falcata Hughes = *Stipa scabra* ssp. *falcata*
Stipa falcata Hughes var. *minor* J.Black = *Stipa nodosa*
Stipa flavescens Labill. - EP NL MU YP SL KI SE
Stipa fusca C.E.Hubb. = *Stipa eremophila*
Stipa gibbosa Vick. - NL SL
Stipa hemipogon Benth. - FR EP NL MU SL KI SE
Stipa horrifolia J.Black = *Stipa drummondii*
Stipa incurva Hughes = *Stipa tenuifolia*
Stipa indepressa J.Black = *Stipa hemipogon*
Stipa lachnocolea (Benth.) Hughes = *Stipa macalpinei*
Stipa lanata Vick., S.W.L.Jacobs & Everett - GT EA
Stipa leptophylla Hughes = *Stipa tenuifolia*
Stipa luehmannii Reader = *Stipa drummondii*
Stipa macalpinei Reader - EP MU SL KI SE
Stipa membranacea L. = *Vulpia membranacea*
Stipa metatoris Everett & S.W.L.Jacobs - SE
Stipa micrantha Cav. = *Dichelachne micrantha*
Stipa mollis R.Br. - FR EP NL MU YP SL KI SE
Stipa muelleri Tate - SL KI SE
Stipa multispiculis J.Black - GT NL ?MU YP SL KI
Stipa mundula J.Black - EP MU YP SE
**Stipa neesiana* Trin. & Rupr. - SL SE
Stipa nitida Summerh. & C.E.Hubb. - NW LE NU GT FR EA EP NL MU YP SL KI SE
Stipa nobilis Pilger = *Stipa hemipogon*
Stipa nodosa S.T.Blake - NW LE GT FR EA EP NL MU YP SL KI SE
Stipa nullanulla S.W.L.Jacobs & Everett - MU
Stipa oligostachya Hughes - SL
Stipa petraea Vick. - FR EA
Stipa pilata S.W.L.Jacobs & Everett - FR NL MU
Stipa plagipogon J.Black = *Stipa mollis*
Stipa platychaeta Hughes - LE NU GT FR EA EP NL MU YP SL
Stipa plumigera Hughes - NW NU
Stipa puberula Steudel = *Stipa puberula*
Stipa puberula Steudel - EP NL MU YP
Stipa pubescens R.Br. var. *effusa* Benth. = *Stipa variabilis*
Stipa pubescens R.Br. var. *comosa* J.Black = *Stipa blackii*
Stipa pubescens R.Br. var. *maritima* J.Black = *Stipa flavescens*
Stipa pubescens sensu J.Black (1943) = *Stipa pubinodis*
Stipa pubinodis Trin. & Rupr. - SL SE
Stipa scabra Lindley ssp. *falcata* (Hughes) Vick., S.W.L.Jacobs & Everett -
FR EP NL MU YP SL KI SE
Stipa scabra Lindley ssp. *scabra* - NW NU FR EA EP NL MU SL
Stipa scabra Lindley var. *elatior* Benth. = *Stipa flavescens*
Stipa scabra Lindley var. *occidentalis* Benth. = *Stipa tenuifolia*
Stipa scabra Lindley var. *pallida* Reader = *Stipa nitida*
Stipa scabra Lindley var. *pubescens* Benth. = *Stipa tenuifolia*
Stipa scabra Lindley var. *striata* Benth. = *Stipa flavescens*
Stipa scelerata Behr ex J.Black = *Stipa macalpinei*

91.495 GRAMINEAE (contd)

- Stipa semibarbata* R.Br. - EA EP NL MU YP SL KI SE
Stipa semibarbata R.Br. var. *gracilis* J.Black = *Stipa hemipogon*
Stipa semibarbata R.Br. var. *mollis* (R.Br.)Benth. = *Stipa mollis*
Stipa setacea R.Br. - FR EA NL MU YP SL SE
Stipa setacea R.Br. var. *latifolia* Benth. = *Stipa macalpinei*
Stipa setacea R.Br. var. *latiglumis* J.Black = *Stipa setacea*
Stipa stipoides (Hook.f.)Veldk. - EP MU YP SL KI SE
Stipa stuposa Hughes - EP SL
Stipa tenuifolia Steudel - EP NL MU YP SL KI
Stipa tenuiglumis Hughes = *Stipa flavescens*
Stipa teretifolia Steudel = *Stipa stipoides*
Stipa trichophylla Benth. - NW LE FR EA EP NL MU YP SL SE
Stipa tuckeri F.Muell. - EA MU
Stipa variabilis Hughes - NU EP NL YP SL SE
Stipa variegata Summerh. & C.E.Hubb. = *Stipa eremophila*
Stipa velutina Vick., S.W.L.Jacobs & Everett - NU EP
Stipa verticillata sensu J.Black (1943) = *Stipa breviglumis*
Stipa vickeryana Everett & S.W.L.Jacobs - NU
 **Taeniatherum caput-medusae* (L.)Nevski - NL
Tetrarrhena distichophylla (Labill.)R.Br. - SE
Themeda australis (R.Br.)Stapf = *Themeda triandra*
Themeda avenacea (F.Muell.)Maiden & Betche - NW
Themeda triandra Forsskal - NW LE GT FR EA EP NL MU YP SL SE
Thinopyrum junceum (L.)A.Löve = *Elymus farctus*
Thyridolepis mitchelliana (Nees)S.T.Blake - NW LE ?NU ?GT FR
Thyridolepis multiculmis (Pilger)S.T.Blake - NW LE GT
Thyridolepis xerophila (Domin)S.T.Blake - NW
Tragus australianus S.T.Blake - NW LE GT FR EA EP NL MU YP
 **Tragus heptaneuron* W.Clayton - status uncertain
Tragus racemosus sensu Benth. (1878) = *Tragus australianus*
Triodia aristata J.Black = *Triodia irritans* var. *irritans*
Triodia basedowii E.Pritzel - NW LE NU FR
Triodia irritans R.Br. var. *compacta* N.Burb. - FR EP MU YP SL SE
Triodia irritans R.Br. var. *irritans* - NW LE NU GT FR EP MU YP ?SL ?SE
Triodia irritans R.Br. var. *laxispicata* N.Burb. - NU FR EP NL MU YP SL SE
Triodia lanata J.Black - NU GT EP
Triodia lanigera Domin - NW
Triodia longiceps J.Black - NW
Triodia parviflora R.Br. = *Diplachne parviflora*
Triodia pungens R.Br. var. *pungens* - NW LE
Triodia pungens sensu J.Black (1943) = *Triodia basedowii*
Triodia scariosa N.Burb. - NW NU ?GT
Tripogon loliformis (F.Muell.)C.E.Hubb. - NW LE GT FR EA EP
Triraphis bromoides sensu J.Black (1943) = *Plectrachne helmsii*
Triraphis mollis R.Br. - NW LE NU GT FR EA EP MU YP SL
Trisetaria pumila (Desf.)Maire = *Lophochloa pumila*
Trisetum pumilum (Desf.)Kunth = *Lophochloa pumila*
 **Triticum aestivum* L. - FR EP NL MU YP SL
Triticum elongatum Host = *Elymus elongatus*
Triticum farctum Viv. = *Elymus farctus*
Triticum junceum L. = *Elymus farctus*
Triticum repens L. = *Elymus repens*
Triticum sativum Lam. = *Triticum aestivum*
Triticum vulgare Villars = *Triticum aestivum*
Uniola distichophylla Labill. = *Distichlis distichophylla*
Uranthoecium truncatum (Maiden & Betche)Stapf - LE
Urochloa gilesii (Benth.)Hughes = *Brachiaria gilesii*
Urochloa notochthona (Domin)Hughes = *Brachiaria notochthona*
Urochloa praetervisa (Domin)Hughes = *Brachiaria praetervisa*
Vilfa actinoclada F.Muell. = *Sporobolus actinoclados*
Vilfa mitchellii Trin. = *Sporobolus mitchellii*
 **Vulpia bromoides* (L.)Gray - NU FR EP NL YP MU SL KI SE
Vulpia broteri Boiss. & Reuter = *Vulpia muralis*
 **Vulpia ciliata* (Pers.)Link - MU SL SE

91.495 GRAMINEAE (contd)

- **Vulpia fasciculata* (Forsskal) Samp. - EP MU YP SL SE
- **Vulpia megalura* (Nutt.) Rydb. - FR EP NL MU YP SL KI SE
- **Vulpia membranacea* (L.) Dumort. - not in S.Aust.
Vulpia membranacea sensu Jessop (1978) = *Vulpia fasciculata*
- **Vulpia muralis* (Kunth) Nees - FR EP MU SL SE
- **Vulpia myuros* (L.) C.Gmelin - LE FR EA EP NL MU YP SL KI SE
Vulpia myuros (L.) C.Gmelin forma *megalura* (Nutt.) Stace & Cotton = *Vulpia megalura*
Vulpia sciuroides (Roth) Roth ex C.Gmelin = *Vulpia bromoides*
- Yakirra australiensis* (Domin) Lazarides & R.Webster - LE
- Zoysia matrella* (L.) Merr. - EP KI SE
- Zoysia pungens* Willd. = *Zoysia matrella*
- Zygochloa paradoxa* (R.Br.) S.T.Blake - LE GT FR EA EP

91.497 PALMAE

- **Phoenix canariensis* Hort. ex Chabaud - MU SL
- **Phoenix dactylifera* L. - LE
- **Washingtonia filifera* Wendl. - MU ?SL

91.499 ARACEAE

- **Arisarum vulgare* Targ.-Tozz. ssp *vulgare* - SL
- **Arum italicum* Miller - SL
Calla aethiopica L. = *Zantedeschia aethiopica*
Richardia africana Kunth = *Zantedeschia aethiopica*
- **Zantedeschia aethiopica* (L.) Sprengel - SL

91.500 LEMNACEAE

- Lemna disperma* Hegelm. - MU SL SE
- Lemna minor* sensu Jessop (1978) = *Lemna disperma*
- Lemna oligorrhiza* Kurz = *Spirodela punctata*
- Lemna punctata* G.Meyer = *Spirodela punctata*
- Lemna trisulca* L. - MU KI SE
- Spirodela oligorrhiza* (Kurz) Hegelm. = *Spirodela punctata*
- Spirodela punctata* (G.Meyer) C.Thompson - MU SL SE
- Wolffia angusta* Landolt - MU SL SE
- Wolffia arrhiza* (L.) Horkel ex Wimmer var. *australiana* Benth. = *Wolffia australiana*
- Wolffia arrhiza* sensu J.Black (1943) = *Wolffia australiana*
- Wolffia australiana* (Benth.) Hartog & Plas - MU SL SE
- Wolffia globosa* sensu Jessop (1978) = *Wolffia angusta*

91.503 TYPHACEAE

- Typha angustifolia* L. var. *brownii* (Kunth) Kronf. = *Typha domingensis*
- Typha angustifolia* sensu J.Black (1943), partly = *Typha domingensis*
- Typha angustifolia* sensu J.Black (1943), partly = *Typha orientalis*
- Typha basedowii* Graebner = *Typha domingensis*
- Typha brownii* Kunth = *Typha domingensis*
- Typha domingensis* Pers. - NW LE FR MU YP SL KI SE
- Typha muelleri* Rohrb. = *Typha orientalis*
- Typha orientalis* C.Presl - LE FR MU SL KI SE

91.504 CYPERACEAE

- Arthrostylis kennyi* F.M.Bail. = *Schoenus kennyi*
- Baumea acuta* (Labill.) Palla - ?EP SL KI SE
- Baumea arthropphylla* (Nees) Boeckeler - LE FR EP NL MU SL KI SE
- Baumea articulata* (R.Br.) S.T.Blake - FR NL SL KI SE
- Baumea gunnii* (Hook.f.) S.T.Blake - SL KI SE
- Baumea huttonii* (Kirk) S.T.Blake = *Baumea arthropphylla*
- Baumea juncea* (R.Br.) Palla - LE EP MU YP SL KI SE
- Baumea laxa* (Nees) Boeckeler - SL KI SE
- Baumea longifolia* Boeckeler = *Gahnia flum*
- Baumea rubiginosa* (Sprengel) Boeckeler - LE FR ?EP ?NL SL KI ?SE
- Baumea tetragona* (Labill.) S.T.Blake - SL KI SE
- Bolboschoenus caldwellii* (V.Cook) Sojak - LE FR EP NL MU SL SE
- Bolboschoenus fluviatilis* (Torrey) Sojak - not in S.Aust.

91.504 CYPERACEAE (contd)

- Bolboschoenus medianus* (V.Cook)Sojak - LE MU SL SE
Bulbostylis barbata (Rottb.)C.B.Clarke - NW
Bulbostylis eustachii J.Black ex Eardley = *Bulbostylis barbata*
Bulbostylis turbinata S.T.Blake - ?LE ?EP
Carex appressa R.Br. - FR MU SL KI SE
Carex bichenoviana Boott ex Hook.f. - FR MU SL
Carex breviculmis R.Br. - FR EP NL MU SL KI SE
Carex chlorantha R.Br. - ?SE
**Carex divisa* Hudson - MU SL
Carex fascicularis Sol. ex Boott - NL MU SL KI SE
Carex gaudichaudiana Kunth - FR MU SL KI SE
Carex gunniana Boott - FR SL SE
Carex hebes Nemes - LE SL SE
Carex inversa R.Br. var. *inversa* - FR EP SL SE
Carex inversa R.Br. var. *major* Boott - ?SL
Carex iynx Nemes - SL
Carex paniculata sensu Benth. (1878) = *Carex appressa*
Carex pseudocyperus sensu R.Br. (1810) = *Carex fascicularis*
Carex pumila Thunb. - FR NL SL
Carex tereticaulis F.Muell. - FR EP NL SL SE
Caustis pentandra R.Br. - SL KI SE
Chaetospora axillaris R.Br. = *Schoenus maschalinus*
Chaetospora capillacea sensu Hook.f. (1858) = *Tetraria capillaris*
Chaetospora capillaris F.Muell. = *Tetraria capillaris*
Chaetospora deformis R.Br. = *Schoenus deformis*
Chaetospora imberbis R.Br. = *Schoenus apogon*
Chaetospora nana Nees = *Schoenus nanus*
Chaetospora nitens R.Br. = *Schoenus nitens*
Chaetospora sphaerocephala R.Br. = *Gymnoschoenus sphaerocephalus*
Chaetospora tenuissima F.Muell. ex Hook.f. = *Schoenus tenuissimus*
Chapelliera arthropphylla Nees = *Baumea arthropphylla*
Chapelliera laxa Nees = *Baumea laxa*
Chorizandra cymbaria R.Br. - ?SE
Chorizandra enodis Nees - EP NL MU YP SL KI SE
Cladium acutum (Labill.)Poiret = *Baumea acuta*
Cladium arthropphyllum Nees = *Baumea arthropphylla*
Cladium articulatum R.Br. = *Baumea articulata*
Cladium capillaceum (Benth.)C.B.Clarke = *Tetraria capillaris*
Cladium deustum R.Br. = *Gahnia deusta*
Cladium filum (Labill.)R.Br. = *Gahnia filum*
Cladium glomeratum R.Br. = *Baumea rubiginosa*
Cladium gracile J.Black = *Baumea laxa*
Cladium gunnii Hook.f. = *Baumea gunnii*
Cladium huttonii Kirk = *Baumea arthropphylla*
Cladium junceum R.Br. = *Baumea juncea*
Cladium lanigerum R.Br. = *Gahnia lanigera*
Cladium laxum (Nees)Benth. = *Baumea laxa*
Cladium mariscus (L.)Pohl - NL SL SE
Cladium monocarpum (J.Black)J.Black = *Schoenus carsei*
Cladium procerum S.T.Blake = *Cladium mariscus*
Cladium radula R.Br. = *Gahnia radula*
Cladium rubiginosum (Sprengel)Domin = *Baumea rubiginosa*
Cladium schoenoides R.Br. = *Baumea acuta*
Cladium tetragonum (Labill.)J.Black = *Baumea tetragona*
Cladium tetraquetrum Hook.f. = *Baumea tetragona*
**Cyperus albostrigatus* Schrader - ?SL
Cyperus alterniflorus R.Br. - LE GT FR EA EP NL
Cyperus andrewsii C.B.Clarke = *Cyperus bulbosus*
**Cyperus arenarius* Retz. - EP ?SL ?SE
Cyperus aristatus Rottb. = *Cyperus squarrosus*
Cyperus bifax C.B.Clarke - LE GT
**Cyperus brevifolius* (Rottb.)Hasskarl - ?MU ?SL
Cyperus bulbosus M.Vahl - NW LE GT FR EA MU
Cyperus clelandii J.Black = *Cyperus dactylotes*

91.504 CYPERACEAE (contd)

- **Cyperus congestus* M.Vahl - SL SE
Cyperus dactylotes Benth. - LE
Cyperus difformis L. - NW LE GT FR EA MU
Cyperus distachyos All. = *Cyperus laevigatus*
Cyperus enervis sensu J.Black (1943) = *Cyperus rigidellus*
**Cyperus eragrostis* Lam. - GT FR SL SE
Cyperus eragrostis sensu M.Vahl (1805/6) = *Cyperus sanguinolentus*
Cyperus exaltatus Retz. - NW LE FR MU SL
Cyperus flabelliformis Rottb. = *Cyperus involucratus*
Cyperus gilesii Benth. - LE GT FR EP
Cyperus gracilis R.Br. var. *rigidella* Benth. = *Cyperus rigidellus*
Cyperus gracilis sensu J.Black (1943) = *Cyperus rigidellus*
Cyperus gunnii Hook.f. - LE FR EA EP MU SL SE
Cyperus gymnocaulos Steudel - NW LE GT FR EA EP NL MU SL SE
**Cyperus hamulosus* M.Bieb. - LE MU
Cyperus involucratus Rottb. - SL
Cyperus iria L. - NW LE FR
Cyperus laevigatus L. - LE FR EA EP NL MU SL SE
Cyperus lhotskyanus Boeckeler - ?EP ?SL SE
Cyperus lucidus R.Br. - SE
Cyperus pygmaeus Rottb. - LE ?EA MU
Cyperus retzii Nees = *Cyperus bifax*
Cyperus rigidellus (Benth.)J.Black - NW LE GT FR EP MU
Cyperus rotundus L. ssp. *retzii* (Nees)Kük. = *Cyperus bifax*
**Cyperus rotundus* L. ssp. *rotundus* - GT MU SL
Cyperus rutilans (C.B.Clarke)Maiden & Betche = *Cyperus lhotskyanus*
**Cyperus sanguinolentus* M.Vahl - EP SL
Cyperus sp. aff. *cunninghamii* (C.B.Clarke)C.Gardner - NW LE FR
Cyperus squarrosus L. - NW LE GT
Cyperus tenellus L.f. - EP SL KI SE
Cyperus vaginatus R.Br. - NW LE GT FR EA EP NL MU YP SL KI ?SE
Cyperus vegetus Willd. = *Cyperus eragrostis*
Cyperus victoriensis C.B.Clarke - NW LE MU
Eleocharis acicularis sensu J.Black (1943) = *Eleocharis pusilla*
Eleocharis acuta R.Br. - LE GT FR EP NL MU SL SE
Eleocharis acuta R.Br. var. *pallens* Benth. = *Eleocharis pallens*
Eleocharis atricha R.Br. - SL SE
Eleocharis geniculata (L.)Roemer & Schultes - LE
Eleocharis gracilis R.Br. - SL KI SE
Eleocharis halmaturina J.Black = *Tetraria capillaris*
Eleocharis multicaulis sensu Benth. (1878) = *Eleocharis gracilis*
**Eleocharis nigrescens* (Nees)Steudel - not in S.Aust.
Eleocharis pallens (Benth.)S.T.Blake - LE GT FR SL
Eleocharis plana S.T.Blake - LE
Eleocharis pusilla R.Br. - MU SL SE
Eleocharis sphacelata R.Br. - FR MU SL KI SE
Elynanthus capillaceus Benth. = *Tetraria capillaris*
Elynanthus sculptus Nees = *Schoenus sculptus*
Fimbristylis aestivalis (Retz.)M.Vahl - MU
Fimbristylis barbata (Rottb.)Benth. = *Bulbostylis barbata*
Fimbristylis dichotoma (L.)M.Vahl - NW LE FR EA
Fimbristylis diphylla (Retz.)M.Vahl = *Fimbristylis dichotoma*
Fimbristylis ferruginea (L.)M.Vahl - ?not in S.Aust.
Fimbristylis sieberana Kunth - LE
Fimbristylis squarrosa M.Vahl var. *esquarrosa* Makino = *Fimbristylis velata*
Fimbristylis velata R.Br. - MU
Fuirena rubiginosa Sprengel = *Baumea rubiginosa*
Gahnia ancistrophylla Benth. - FR EP NL SL
Gahnia clarkei Benth. - SL KI SE
Gahnia deusta (R.Br.)Benth. - EP MU YP SL KI SE
Gahnia filum (Labill.)F.Muell. - EP YP SL SE
Gahnia glomerata (R.Br.)F.Muell. = *Baumea rubiginosa*
Gahnia hystrix J.Black - KI
Gahnia lanigera (R.Br.)Benth. - EP NL MU YP SL SE

91.504 CYPERACEAE (contd)

- Gahnia psittacorum* sensu J.Black (1943) = *Gahnia clarkei*
Gahnia radula (R.Br.)Benth. - SL SE
Gahnia sieberiana Kunth - SL KI SE
Gahnia tetragonocarpa Boeckeler = *Gahnia sieberiana*
Gahnia trifida Labill. - LE EP NL MU YP SL KI SE
Gymnoschoenus sphaerocephalus (R.Br.)Hook.f. - SE
Helcocharis halmaturina J.Black = *Tetraria capillaris*
Hypaeliptum microcephalum R.Br. = *Lipocarpa microcephala*
Isolepis australiensis (Maiden & Betche)K.L.Wilson - NW LE EA MU YP SE
Isolepis cernua (M.Vahl)Roemer & Schultes - FR EP NL MU YP SL KI SE
Isolepis congrua Nees - NW FR EP SL SE
Isolepis fluitans (L.)R.Br. - EP MU SL KI SE
Isolepis hookerana Boeckeler - NW LE FR EP SL KI SE
Isolepis hystrix (Thunb.)Nees - SL SE
Isolepis inundata R.Br. - LE FR EP NL MU SL KI SE
Isolepis marginata (Thunb.)A.Dietr. - FR EP NL MU YP SL KI SE
Isolepis nodosa (Rottb.)R.Br. - NU FR EP MU YP SL KI SE
Isolepis platycarpa (S.T.Blake)Sojak - FR EP MU YP SL KI SE
Isolepis producta (C.B.Clarke)K.L.Wilson - SL KI SE
Isolepis riparia R.Br. = *Isolepis cernua*
Isolepis stellata (C.B.Clarke)K.L.Wilson - EP SL KI SE
Isolepis subtilissima Boeckeler - SL
Kyllinga brevifolia R.Br. = *Cyperus brevifolius*
Kyllinga intermedia R.Br. = *Cyperus brevifolius*
Lepidosperma canescens Boeckeler - NW EP MU SL KI SE
Lepidosperma carphoides F.Muell. ex Benth. - EP MU SL KI SE
Lepidosperma concavum R.Br. - EP NL MU YP SL KI SE
Lepidosperma congestum R.Br. - EP MU YP SL KI SE
Lepidosperma exaltatum R.Br. = *Lepidosperma longitudinale*
Lepidosperma gladiatum Labill. - EP YP SL KI SE
Lepidosperma laterale R.Br. - LE FR EP NL MU YP SL KI SE
Lepidosperma lineare R.Br. - FR NL SL KI SE
Lepidosperma longitudinale Labill. - EP SL KI SE
Lepidosperma pauciflorum F.Muell. = *Tricostularia pauciflora*
Lepidosperma semiteres F.Muell. ex Boeckeler - MU SL KI SE
Lepidosperma tetragonum Labill. = *Baumea tetragona*
Lepidosperma tortuosum F.Muell. - not in S.Aust.
Lepidosperma tortuosum sensu Jessop (1986) = *Tetraria capillaris*
Lepidosperma urophorum Wakef. - NW
Lepidosperma viscidum R.Br. - FR EP NL MU YP SL KI SE
Lipocarpa microcephala (R.Br.)Kunth - LE MU SE
Machaerina acuta (Labill.)Kern = *Baumea acuta*
Machaerina arthropphylla (Nees)Koyama = *Baumea arthropphylla*
Machaerina articulata (R.Br.)Koyama = *Baumea articulata*
Machaerina capillacea (Benth.)Koyama = *Tetraria capillaris*
Machaerina gracilis (J.Black)Koyama = *Baumea laxa*
Machaerina gunnii (Hook.f.)Kern = *Baumea gunnii*
Machaerina huttonii (Kirk)Koyama = *Baumea arthropphylla*
Machaerina juncea (R.Br.)Koyama = *Baumea juncea*
Machaerina laxa (Nees)Koyama = *Baumea laxa*
Machaerina monocarpa (J.Black)Koyama = *Schoenus carsei*
Machaerina procera (S.T.Blake)Koyama = *Cladium mariscus*
Machaerina rubiginosa (Gaudich.)Koyama = *Baumea rubiginosa*
Machaerina schoenoides (R.Br.)Koyama = *Baumea acuta*
Machaerina tetragona (Labill.)Koyama = *Baumea tetragona*
Mariscus rigidellus (Benth.)C.B.Clarke = *Cyperus rigidellus*
Mariscus rutilans C.B.Clarke = *Cyperus lhotskyanus*
Melanranis rubiginosa (Sprengel)Koyama = *Baumea rubiginosa*
Schoenoplectus dissachanthus (S.T.Blake)Raynal - NW LE
Schoenoplectus lacustris (L.)Palla = *Schoenoplectus validus*
Schoenoplectus litoralis (Schrader)Palla - LE FR EA NL MU SL SE
Schoenoplectus pungens (M.Vahl)Palla - LE GT FR EA EP NL MU SL SE
Schoenoplectus validus (M.Vahl)A. & D.Löve - LE FR EP NL MU SL KI SE
Schoenus acutus Labill. = *Baumea acuta*

91.504 CYPERACEAE (contd)

- Schoenus aphyllus* Boeckeler = *Schoenus subaphyllus*
Schoenus apogon Roemer & Schultes - FR EP NL MU YP SL KI SE
Schoenus axillaris (R.Br.)Poiret = *Schoenus maschalinus*
Schoenus brachyphyllus F.Muell. ex J.Black - SL KI SE
Schoenus breviculmis Benth. - EP MU YP SL KI SE
Schoenus brownii Hook.f. = *Schoenus apogon*
Schoenus carsei Cheeseman - EP SL KI SE
Schoenus deformis (R.Br.)Poiret - EP MU YP SL SE
Schoenus discifer Tate - SL KI ?SE
Schoenus filum Labill. = *Gahnia filum*
Schoenus fluitans Hook.f. - SL KI SE
Schoenus foliatus (Hook.f.)S.T.Blake = *Schoenus maschalinus*
Schoenus humilis Benth. - ?not in S.Aust.
Schoenus kennyi (Bailey)S.T.Blake - not in S.Aust.
Schoenus kennyi sensu Jessop (1978) = *Schoenus subaphyllus*
Schoenus latelaminatus Kük. - KI SE
Schoenus mariscus L. = *Cladium mariscus*
Schoenus maschalinus Roemer & Schultes - SL KI SE
Schoenus monocarpus J.Black = *Schoenus carsei*
Schoenus nanus (Nees)Benth. - FR EP MU YP SL KI SE
Schoenus nitens (R.Br.)Poiret - NL MU YP SL KI SE
Schoenus racemosus J.Black - EP MU YP SE
Schoenus rubiginosus (Sprengel)Sprengel = *Baumea rubiginosa*
Schoenus sculptus (Nees)Boeckeler - EP KI
Schoenus subaphyllus Kük. - GT EP MU
Schoenus subaxillaris Kük. = *Schoenus maschalinus*
Schoenus tenuissimus Benth. - SL ?SE
Schoenus tepperi F.Muell. = *Schoenus breviculmis*
Schoenus tesquorum J.Black - SL KI SE
Scirpidium nigrescens Nees = *Eleocharis nigrescens*
Scirpus aestivalis Retz. = *Fimbristylis aestivalis*
Scirpus americanus Pers. = *Schoenoplectus pungens*
Scirpus antarcticus L. = *Isolepis marginata*
Scirpus arenarius sensu Benth. (1878) = *Isolepis cernua*
Scirpus australiensis (Maiden & Betche)S.T.Blake = *Isolepis australiensis*
Scirpus barbatus Rottb. = *Bulbostylis barbata*
Scirpus caldwellii V.Cook = *Bolboschoenus caldwellii*
Scirpus cernuus M.Vahl = *Isolepis cernua*
Scirpus cernuus M.Vahl var. *australiensis* Maiden & Betche = *Isolepis australiensis*
Scirpus congruus (Nees)S.T.Blake = *Isolepis congrua*
Scirpus dichotomus L. = *Fimbristylis dichotoma*
Scirpus diphylla Retz. = *Fimbristylis dichotoma*
Scirpus dissachanthus S.T.Blake = *Schoenoplectus dissachanthus*
Scirpus ferrugineus L. = *Fimbristylis ferruginea*
Scirpus fluitans L. = *Isolepis fluitans*
Scirpus fluviatilis (Torrey)A.Gray - not in S.Aust.
Scirpus fluviatilis sensu Jessop (1978) = *Bolboschoenus medianus*
Scirpus foliatus Hook.f. = *Schoenus maschalinus*
Scirpus geniculatus L. = *Eleocharis geniculata*
Scirpus hamulosus (M.Bieb.)Steven = *Cyperus hamulosus*
Scirpus hookerianus (Boeckeler)S.T.Blake = *Isolepis hookerana*
Scirpus hystrix Thunb. = *Isolepis hystrix*
Scirpus inundatus (R.Br.)Poiret = *Isolepis inundata*
Scirpus kochii Maiden & Betche = *Isolepis congrua*
Scirpus lacustris L. = *Schoenoplectus validus*
Scirpus lacustris L. ssp. *validus* (M.Vahl)Koyama = *Schoenoplectus validus*
Scirpus lateriflorus J.Gmelin - not in S.Aust.
Scirpus litoralis Schrader = *Schoenoplectus litoralis*
Scirpus marginatus Thunb. = *Isolepis marginata*
Scirpus maritimus L. var. *fluviatilis* Torrey = *Bolboschoenus fluviatilis*
Scirpus maritimus sensu Jessop (1978) = *Bolboschoenus caldwellii*
Scirpus medianus V.Cook = *Bolboschoenus medianus*
Scirpus nitens (R.Br.)Boeckeler = *Schoenus nitens*
Scirpus nodosus Rottb. = *Isolepis nodosa*

91.504 CYPERACEAE (contd)

- Scirpus platycarpus* S.T.Blake = *Isolepis platycarpa*
Scirpus productus C.B.Clarke = *Isolepis producta*
Scirpus pungens M.Vahl = *Schoenoplectus pungens*
Scirpus riparius (R.Br.)Poiret = *Isolepis cernua*
Scirpus stellatus C.B.Clarke = *Isolepis stellata*
Scirpus subtilissimus (Boeckeler)S.T.Blake = *Isolepis subtilissima*
Scirpus validus M.Vahl = *Schoenoplectus validus*
Scirpus victoriensis Wakef. - not in S.Aust.
Stenophyllus barbatus (Rottb.)Cooke = *Bulbostylis barbata*
Tetraria capillaris (F.Muell.)J.Black - SL KI SE
Tetraria halmaturina (J.Black)J.Black = *Tetraria capillaris*
Tetraria monoecarpa (J.Black)J.Black = *Schoenus carsei*
Tricostularia pauciflora (F.Muell.)Benth. - SL SE

91.514 ORCHIDACEAE

- Acianthus caudatus* R.Br. var. *caudatus* - SL KI SE
Acianthus caudatus R.Br. var. *pallidus* Rupp - SL
Acianthus exsertus R.Br. - FR EP NL MU YP SL KI SE
Acianthus reniformis (R.Br.)Schltr. var. *reniformis* = *Cyrtostylis robusta*
Caladenia aff. *alba* R.Br. = *Caladenia* sp. A.
Caladenia alba R.Br. var. *alba* - not in S.Aust.
Caladenia angustata Lindley = *Caladenia gracilis*
Caladenia audasii R.Rogers - ?SE
Caladenia behrii Schldl. = *Caladenia patersonii*
Caladenia bicallata R.Rogers - EP YP SL KI SE
Caladenia caerulea R.Br. - not in S.Aust.
Caladenia calcicola G.Carr - SE
Caladenia cardiochila Tate - FR EP NL MU YP SL KI SE
Caladenia carnea R.Br. var. *alba* sensu J.Weber & R.Bates = *Caladenia* sp. A.
Caladenia carnea R.Br. var. *attenuata* Brinsley - not in S.Aust.
Caladenia carnea R.Br. var. *carnea* - FR EP NL MU YP SL KI SE
Caladenia carnea R.Br. var. *gigantea* R.Rogers - FR
Caladenia carnea R.Br. var. *minor* (Hook.f.)Hatch - MU SL KI SE
Caladenia carnea R.Br. var. *pygmaea* R.Rogers = *Caladenia pusilla*
Caladenia catenata (Smith)Druce - not in S.Aust.
Caladenia catenata (Smith)Druce var. *gigantea* (R.Rogers)W.M.Curtis =
Caladenia carnea var. *gigantea*
Caladenia catenata (Smith)Druce var. *minor* (Hook.f.)W.M.Curtis =
Caladenia carnea var. *minor*
Caladenia clavigera Cunn. ex Lindley - SE
Caladenia concinna (Rupp)D.Jones & M.Clements = *Caladenia toxochila*
Caladenia concolor Fitzg. - ?FR MU ?SL ?SE
Caladenia congesta R.Br. - SE
Caladenia cordiformis R.Rogers = *Caladenia clavigera*
Caladenia cucullata Fitzg. - SE
Caladenia deformis R.Br. - FR EP NL MU YP SL KI SE
Caladenia deformis R.Br. var. *albiflora* Benth. = *Caladenia deformis*
Caladenia denticulata Lindley - not in S.Aust.
Caladenia dilatata R.Br. - FR EP NL MU YP SL KI SE
Caladenia dilatata R.Br. var. *concinna* Rupp = *Caladenia toxochila*
Caladenia dilatata R.Br. var. *stricta* R.Bates = *Caladenia stricta*
Caladenia filamentosa R.Br. var. *bicallata* (R.Rogers)J.Weber & R.Bates =
Caladenia bicallata
Caladenia filamentosa R.Br. var. *denticulata* (Lindley)Reichb.f. = *Caladenia denticulata*
Caladenia filamentosa R.Br. var. *filamentosa* - FR NL MU YP SE
Caladenia filamentosa R.Br. var. *tentaculata* R.Rogers - FR EP NL MU YP KI SE
Caladenia fimbriata (Lindley)Reichb.f. = *Leporella fimbriata*
Caladenia fitzgeraldii Rupp - FR NL MU
Caladenia fragrantissima D.Jones & G.Carr - EP YP SE
Caladenia gladiolata R.Rogers - FR NL SL
Caladenia gracilis R.Br. - SE
Caladenia hastata (Nicholls)Rupp - ?SE
Caladenia aff. *huegelii* Reichb.f. - SL KI
Caladenia huegelii Reichb.f. - not in S.Aust.

91.514 ORCHIDACEAE (contd)

Caladenia huegelii Reichb.f. var. *reticulata* (Fitzg.) J. Weber & R. Bates =*Caladenia reticulata**Caladenia huegelii* Reichb.f. var. *rigida* (R. Rogers) J. Weber & R. Bates = *Caladenia rigida**Caladenia latifolia* R.Br. - FR EP NL MU YP SL KI SE*Caladenia leptochila* Fitzg. - FR NL MU SL*Caladenia menziesii* R.Br. - FR EP SL KI SE*Caladenia minor* Hook.f. = *Caladenia carnea* var. *minor**Caladenia ovata* R. Rogers - SL KI*Caladenia patersonii* R.Br. - FR EP NL MU YP SL SE*Caladenia patersonii* R.Br. var. *concolor* (Fitzg.) J. H. Willis & Court = *Caladenia concolor**Caladenia patersonii* R.Br. var. *suaveolens* Nicholls = *Caladenia fragrantissima**Caladenia pusilla* W. M. Curtis - FR EP SL KI SE*Caladenia radialis* R. Rogers - not in S. Aust.*Caladenia reticulata* Fitzg. - SL KI SE*Caladenia rigida* R. Rogers - SL*Caladenia* sp. A. - FR*Caladenia stricta* (R. Bates) R. Bates. - ?FR EP NL MU YP SL KI SE*Caladenia tentaculata* Schldl. - FR SL SE*Caladenia tentaculata* Tate = *Caladenia filamentosa* var. *tentaculata**Caladenia tessellata* Fitzg. - not in S. Aust.*Caladenia toxochila* Tate - GT FR EA EP NL MU YP SE*Caladenia* × *tutelata* R. Rogers = *Glossodia* × *tutelata**Caladenia* × *variabilis* Nicholls - NL MU SE*Caleana major* R.Br. - SL SE*Caleana minor* R.Br. = *Paracaleana minor**Caleana sullivanii* Nicholls = *Paracaleana minor**Calochilus campestris* R.Br. - EP ?MU SL ?KI SE*Calochilus cupreus* R. Rogers = *Calochilus campestris**Calochilus imberbis* R. Rogers = *Calochilus robertsonii**Calochilus paludosus* R.Br. - SL KI SE*Calochilus robertsonii* Benth. - SL KI SE*Calochilus saprophyticus* R. Rogers = *Calochilus campestris**Chiloglottis cornuta* Hook.f. - SE*Chiloglottis gunnii* Hook.f. - ?SL ?SE*Chiloglottis muelleri* Fitzg. = *Chiloglottis cornuta**Chiloglottis trapeziformis* Fitzg. - SE*Corybas* aff. *despectans* D. Jones & R. Nash - EP YP SL KI SE*Corybas despectans* D. Jones & R. Nash - EP NL YP SL KI SE*Corybas diemenicus* (Lindley) Rupp - MU SL KI SE*Corybas diemenicus* sensu J. Weber & R. Bates (1986) = *Corybas incurvus**Corybas dilatatus* (Rupp & Nicholls) Rupp = *Corybas diemenicus**Corybas fordhamii* (Rupp) Rupp - SL*Corybas incurvus* D. Jones - FR EP NL MU SL KI SE*Corybas unguiculatus* (R.Br.) Reichb.f. - SL SE*Corysanthes diemenica* Lindley = *Corybas diemenicus**Corysanthes dilatata* Rupp & Nicholls = *Corybas diemenicus**Corysanthes fordhamii* Rupp = *Corybas fordhamii**Corysanthes unguiculata* R.Br. = *Corybas unguiculatus**Cryptostylis longifolia* R.Br. = *Cryptostylis subulata**Cryptostylis subulata* (Labill.) Reichb.f. - SL KI SE*Cyrtostylis reniformis* R.Br. - FR NL MU SL SE*Cyrtostylis robusta* D. Jones & M. Clements - EP NL MU YP SL KI SE*Dendrobium punctatum* Smith = *Dipodium punctatum**Dipodium punctatum* (Smith) R.Br. - SL SE*Diuris behrii* Schldl. - FR MU YP SL*Diuris brevifolia* R. Rogers - SL KI*Diuris brevissima* Fitzg. = *Diuris maculata**Diuris corymbosa* Lindley - EP MU YP SL KI SE*Diuris elongata* Sw. = *Diuris punctata* var. *punctata**Diuris emarginata* R.Br. - not in S. Aust.*Diuris emarginata* sensu J. Weber & R. Bates (1986) = *Diuris corymbosa**Diuris* × *fastidiosa* R. Rogers - FR NL*Diuris lanceolata* Lindley - SL SE*Diuris longifolia* R.Br. - not in S. Aust.

91.514 ORCHIDACEAE (contd)*Diuris maculata* Smith - EP NL MU YP SL SE*Diuris* × *palachila* R.Rogers - NL MU SL SE*Diuris palustris* Lindley - FR EP NL MU YP SL SE*Diuris pedunculata* R.Br. - not in S.Aust.*Diuris pedunculata* sensu J.Weber & R.Bates (1986), partly = *Diuris behrii**Diuris pedunculata* sensu J.Weber & R.Bates (1986), partly = *Diuris lanceolata**Diuris punctata* Smith var. *punctata* - SE*Diuris punctata* Smith var. *punctata* forma *blakneyae* Bailey =*Diuris punctata* var. *punctata**Diuris sulphurea* R.Br. - SE*Diuris sulphurea* R.Br. ssp. *brevifolia* (R.Rogers) J.Weber & R.Bates (1986) =*Diuris brevifolia**Epipactis cucullata* Labill. = *Eriochilus cucullatus**Epipactis porrifolia* Sw. = *Microtis unifolia**Eriochilus autumnalis* R.Br. - not in S.Aust.*Eriochilus cucullatus* (Labill.) Reichb.f. - FR EP NL MU YP SL KI SE*Eriochilus fimbriatus* (Lindley) F.Muell. = *Leporella fimbriata**Gastrodia sesamoides* R.Br. - SL KI SE*Glossodia major* R.Br. - NL SL SE*Glossodia* × *tutelata* (R.Rogers) Kavulak - SL SE*Leporella fimbriata* (Lindley) A.S.George - EP NL SL KI SE*Leptoceras fimbriatum* Lindley = *Leporella fimbriata**Leptoceras menziesii* (R.Br.) Lindley = *Caladenia menziesii**Lyperanthus nigricans* R.Br. - FR EP NL MU YP SL KI SE*Macdonaldia antennifera* Lindley = *Thelymitra antennifera**Malaxis subulata* Labill. = *Cryptostylis subulata**Microtis atrata* Lindley - EP SL KI SE*Microtis frutetorum* Schltr. = *Microtis unifolia**Microtis minutiflora* F.Muell. = *Microtis atrata**Microtis oblonga* R.Rogers = *Microtis rara**Microtis orbicularis* R.Rogers - EP SL KI SE*Microtis parviflora* R.Br. - FR EP SL ?KI SE*Microtis porrifolia* (Sw.) R.Br. ex Sprengel = *Microtis unifolia**Microtis rara* R.Br. - SL KI SE*Microtis unifolia* (Forster f.) Reichb.f. - FR EP NL MU YP SL KI SE* *Monadenia bracteata* (Sw.) Durand & Schinz - SL*Neottia australis* R.Br. = *Spiranthes sinensis* ssp. *australis**Neottia sinensis* Pers., partly = *Spiranthes sinensis* ssp. *australis**Ophrys unifolia* Forster f. = *Microtis unifolia**Orthoceras strictum* R.Br. - FR EP NL YP SL KI SE*Orthoceras strictum* R.Br. forma *viridis* Hatch = *Orthoceras strictum**Paracaleana* aff. *nigrita* (Lindley) D.Blaxell - SL KI*Paracaleana minor* (R.Br.) D.Blaxell - SL SE*Paracaleana nigrita* (Lindley) D.Blaxell - not in S.Aust.*Paracaleana sullivanii* (Nicholls) D.Blaxell = *Paracaleana minor**Prasophyllum album* R.Rogers = *Prasophyllum patens**Prasophyllum archeri* Hook.f. - SL SE*Prasophyllum australe* R.Br. - SL KI SE*Prasophyllum calcicole* R.Bates ined. - EP YP*Prasophyllum constrictum* R.Rogers - EP MU SL SE*Prasophyllum despectans* Hook.f. - SE*Prasophyllum elatum* R.Br. - FR EP NL MU YP SL KI SE*Prasophyllum secundum* R.Bates ined. - EP YP SL*Prasophyllum stzgeraldii* R.Rogers & Maiden - FR EP NL YP SL SE*Prasophyllum frenchii* F.Muell. - SL SE*Prasophyllum fuscoviride* Reader = *Prasophyllum nigricans**Prasophyllum fuscum* R.Br. - not in S.Aust.*Prasophyllum fuscum* R.Br. var. *validum* (R.Rogers) J.Weber & R.Bates =*Prasophyllum validum**Prasophyllum fuscum* sensu J.Black (1922) = *Prasophyllum pallidum**Prasophyllum fuscum* sensu J.Weber & R.Bates (1986) = *Prasophyllum constrictum**Prasophyllum goldsackii* J.Weber & R.Bates - EP YP*Prasophyllum gracile* sensu J.Black (1943) = *Prasophyllum constrictum**Prasophyllum hartii* R.Rogers = *Prasophyllum frenchii*

91.514 ORCHIDACEAE (contd)

- Prasophyllum intricatum* C.Stuart ex Benth. = *Prasophyllum archeri*
Prasophyllum macrostachyum R.Br. - not in S.Aust.
Prasophyllum morrisii Nicholls var. *morrisii* - SE
Prasophyllum nigricans R.Br. - FR EP NL MU YP ?KI SE
Prasophyllum nigricans sensu J.Black (1943) = *Prasophyllum rufum*
Prasophyllum occultans R.Bates ined. - EP YP SE
Prasophyllum odoratum R.Rogers = *Prasophyllum patens*
Prasophyllum odoratum R.Rogers var. *album* (R.Rogers) R.Rogers = *Prasophyllum patens*
Prasophyllum pallidum Nicholls - FR NL SL
Prasophyllum patens R.Br. - FR EA EP NL MU YP SL KI SE
Prasophyllum patens R.Rogers var. *pruinorum* (R.Rogers) R.Rogers =
Prasophyllum pruinorum
Prasophyllum patens sensu J.Black (1943) = *Prasophyllum pruinorum*
Prasophyllum pruinorum R.Br. - SL
Prasophyllum rotundiflorum R.Rogers = *Prasophyllum patens*
Prasophyllum rufum R.Br. - FR EP NL MU YP SL KI SE
Prasophyllum tepperi F.Muell. ex Tepper = *Prasophyllum nigricans*
Prasophyllum truncatum Lindley - EP YP SE
Prasophyllum validum R.Rogers - FR
Pterostylis acuminata R.Br. var. *×ingens* Rupp = *Pterostylis ×ingens*
Pterostylis aff. *aciculiformis* (Nicholls) M.Clements & D.Jones - SL SE
Pterostylis aff. *aphylla* Lindley - SL
Pterostylis aff. *despectans* (Nicholls) M.Clements & D.Jones - EP NL
Pterostylis aff. *parviflora* R.Br. - SE
Pterostylis alata (Labill.) Reichb.f. - SL KI SE
Pterostylis alata (Labill.) Reichb.f. var. *robusta* Ewart & Sharman = *Pterostylis robusta*
Pterostylis arenicola M.Clements & D.Jones - MU SL
Pterostylis barbata sensu J.Black (1943) = *Pterostylis plumosa*
Pterostylis biseta Blackmore & M.Clemesha - FR EA EP NL MU YP SL SE
Pterostylis boormanii Rupp - FR EP NL MU YP
Pterostylis concinna R.Br. - SE
Pterostylis cucullata R.Br. - SL
Pterostylis curta R.Br. - FR SL SE
Pterostylis cynocephala Fitzg. - FR EP NL MU YP SL SE
Pterostylis dolichochila M.Clements & D.Jones - ?FR EP MU YP ?SL SE
Pterostylis erythroconcha M.Clements - EP MU YP KI SE
Pterostylis excelsa M.Clements - NU GT FR EA EP MU YP SL
Pterostylis falcata R.Rogers = *Pterostylis furcata*
Pterostylis foliata Hook.f. - SL SE
Pterostylis furcata Lindley - KI SE
Pterostylis hamata sensu J.Weber & R.Bates (1978), partly = *Pterostylis excelsa*
Pterostylis hamiltonii Rupp - not in S.Aust.
Pterostylis hamiltonii sensu J.Black (1943) = *Pterostylis erythroconcha*
Pterostylis ×ingens (Rupp) D.Jones - ?SL ?SE
Pterostylis longifolia R.Br. - FR EP NL MU YP SL KI SE
Pterostylis maxima M.Clements & D.Jones - SE
Pterostylis mitchellii Lindley - not in S.Aust
Pterostylis mitchellii Lindley forma major Lindley = *Pterostylis excelsa*
Pterostylis mitchellii sensu J.Black = *Pterostylis excelsa*
Pterostylis mitchellii sensu J.Weber & R.Bates (1978) = *Pterostylis ovata*
Pterostylis mutica R.Br. - NU FR EA EP NL MU YP SL SE
Pterostylis nana R.Br. - GT FR EP NL MU YP SL KI SE
Pterostylis nutans R.Br. - SL KI SE
Pterostylis obtusa R.Br. - SL
Pterostylis ovata M.Clements - GT EP
Pterostylis parviflora R.Br. var. *aphylla* (Lindley) Ewart & White = *Pterostylis* aff. *aphylla*
Pterostylis pedunculata R.Br. - FR NL YP SL KI SE
Pterostylis plumosa Cady - FR EP NL MU YP SL KI SE
Pterostylis praecox Lindley var. *robusta* Ewart & Sharman = *Pterostylis robusta*
Pterostylis pusilla R.Rogers - FR EP NL MU YP ?SL SE
Pterostylis robusta R.Rogers - FR EP NL MU YP SL SE
Pterostylis rufa R.Br. - SL SE
Pterostylis rufa sensu J.Black (1943) = *Pterostylis biseta*
Pterostylis scabra Lindley - not in S.Aust.

91.514 ORCHIDACEAE (contd)

- Pterostylis scabra* Lindley var. *robusta* (R.Rogers) A.S.George = *Pterostylis robusta*
Pterostylis setifera M.Clements, Matthias & D.Jones - MU
Pterostylis sp. sensu J.Weber & R.Bates (1978) - EP MU
Pterostylis squamata sensu J.Black (1943) = *Pterostylis arenicola*
Pterostylis tenuissima Nicholls - SE
Pterostylis vercenae R.Rogers = *Pterostylis foliata*
Pterostylis vittata Lindley - FR EP NL MU YP SL KI SE
Pterostylis xerophila M.Clements - GT EP MU
Spiranthes australis (R.Br.) Lindley = *Spiranthes sinensis* ssp. *australis*
Spiranthes sinensis (Pers.) Ames ssp. *australis* (R.Br.) Kitamura - SL KI SE
Thelymitra antennifera (Lindley) Hook.f. - FR EP NL MU YP SL KI SE
Thelymitra aristata Lindley - FR NL SL SE
Thelymitra aristata Lindley var. *megcalyptra* (Fitzg.) Nicholls ex R.Rogers =
Thelymitra megcalyptra
Thelymitra aristata sensu J.Black (1943) = *Thelymitra nuda*
Thelymitra azurea R.Rogers - EP MU YP SL KI SE
Thelymitra ?benthamiana Reichb.f. - EP SL KI SE
Thelymitra canaliculata R.Br. - not in S.Aust.
Thelymitra carnea (Fitzg.) J.Weber & R.Bates var. *rubra* (Fitzg.) J.Weber & Bates =
Thelymitra rubra var. *rubra*
Thelymitra carnea R.Br. var. *rubra* (Fitzg.) J.Weber & R.Bates - EP SL
Thelymitra × *chasmogama* R.Rogers - FR EP NL YP SL
Thelymitra circumsepta Fitzg. - SL
Thelymitra cyanea (Lindley) Benth. = *Thelymitra venosa*
Thelymitra d'altonii R.Rogers = *Thelymitra matthewsii*
Thelymitra decora Cheeseman - not in S.Aust.
Thelymitra epipactoides F.Muell. - EP MU SE
Thelymitra flexuosa Endl. - EP SL KI SE
Thelymitra fuscolutea R.Br. var. *fuscolutea* - EP SL KI SE
Thelymitra fuscolutea sensu J.Weber & R.Bates = *Thelymitra ?benthamiana*
Thelymitra graminea Lindley - not in S.Aust.
Thelymitra grandiflora Fitzg. = *Thelymitra aristata*
Thelymitra grandis Benth. = *Thelymitra nuda*
Thelymitra holmesii Nicholls - SL SE
Thelymitra × *irregularis* Nicholls - SL ?SE
Thelymitra ixioides Sw. - SL SE
Thelymitra ixioides Sw. var. *ixioides forma merranae* (Nicholls) Nicholls =
Thelymitra merranae
Thelymitra ixioides Sw. var. *truncata* (R.Rogers) Nicholls = *Thelymitra* × *truncata*
Thelymitra juncifolia Lindley = *Thelymitra ixioides*
Thelymitra longifolia Forster f. - ?not in S.Aust.
Thelymitra longifolia sensu J.Black (1943) = *Thelymitra nuda*
Thelymitra longifolia sensu J.Weber & R.Bates (1978) = *Thelymitra nuda*
Thelymitra luteocillium Fitzg. - FR EP MU YP SL KI SE
Thelymitra mackibbinii F.Muell. - not in S.Aust.
Thelymitra × *macmillanii* F.Muell. - FR YP SL KI SE
Thelymitra macrophylla Lindley - not in S.Aust.
Thelymitra matthewsii Cheeseman - KI SE
Thelymitra megcalyptra Fitzg. - status uncertain
Thelymitra merranae Nicholls - SL
Thelymitra mucida Fitzg. - SL KI SE
Thelymitra nuda R.Br. - FR EP NL MU YP SL KI SE
Thelymitra pauciflora R.Br. - FR EP NL MU SL KI SE
Thelymitra pauciflora R.Br. var. *holmesii* (Nicholls) Nicholls = *Thelymitra holmesii*
Thelymitra resecta sensu J.Weber & R.Bates (1986) = *Thelymitra circumsepta*
Thelymitra rubra Fitzg. var. *rubra* - FR EP NL SL SE
Thelymitra × *truncata* R.Rogers - SL SE
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REVISION OF THE CASSIINAE* IN AUSTRALIA.
2. *SENNA* MILLER SECT. *PSILORHEGMA*
(J. VOGEL) IRWIN AND BARNEBY

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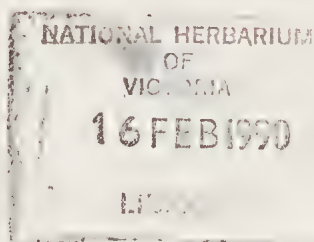
Abstract

The delimitation of sect. *Psilorhegma* is clarified by the exclusion of one non-Australian species *Cassia divaricata* Nees & Bl. A Gondwanic origin of the section is supported. Morphological characters are discussed in detail and three series are recognised. Detailed analyses of two hybrid swarms in ser. *Subverrucosae* lead to the specific and subspecific concepts adopted here. A possible history of this series is then discussed.

The taxonomic revision considers 44 taxa in 16 species, one of which is first described here. 10 new subspecies are described. Of those species previously described, 14 are transferred from *Cassia* to *Senna*, and 19 are reduced to subspecific rank, while 2 varieties are now recognised as subspecies.

New taxa are: *Senna* ser. *Oligocladae* Randell; *S. procumbens* Randell; *S. artemisioides* subsp. *filifolia* Randell; *petiolaris* Randell; *alicia* Randell; *quadrifolia* Randell; *glaucifolia* Randell; *stricta* Randell; and *symonii* Randell; *S. cardiosperma* subsp. *flexuosa* Randell; *gawlerensis* Randell; and *microphylla* Randell.

New combinations are: *Senna* ser. *Interglandulosae* (Benth.) Randell; and *Senna* ser. *Subverrucosae* (Benth.) Randell; *S. surattensis* subsp. *sulfurea* (Colladon) Randell; and *retusa* (J. Vogel) Randell; *S. acclinis* (F. Muell.) Randell; *S. odorata* (Morris) Randell; *S. aciphylla* (Benth.) Randell; *S. coronilloides* (Benth.) Randell; *S. costata* (J.F. Bailey and C. White) Randell; *S. glutinosa* (DC.) Randell; *S. glutinosa* subsp. *chatelainiana* (Gaudich.) Randell; × *luerssenii* (Domin) Randell; *pruinosa* (F. Muell.) Randell; *charlesiana* (Symon) Randell; and *ferraria* (Symon) Randell; *S. artemisioides* (DC.) Randell; *S. artemisioides* subsp. *circinnata* (Benth.) Randell; × *coriacea* (Benth.) Randell; *zygophylla* (Benth.) Randell; *oligophylla* (F. Muell.) Randell; *helmsii* (Symon) Randell; × *sturtii* 7(R. Br.) Randell; and *hamersleyensis* (Symon) Randell; *S. cardiosperma* (F. Muell.) Randell; *S. cardiosperma* subsp. *pilocarina* (Symon) Randell; *cuthbertsonii* (F. Muell.) Randell; *stowardii* (S. Moore) Randell; and *manicula* (Symon) Randell; *S. oligoclada* (F. Muell.) Randell; *S. goniodes* (A. Cunn. ex Benth.) Randell; *S. leptoclada* (Benth.) Randell; *S. heptanthera* (F. Muell.) Randell; *S. curvistyla* (J. Black) Randell; and *S. cladophylla* (W. Fitzg.) Randell.



* The present treatment of sect. *Psilorhegma* is the second in a series of revisions of the Australian members of the *Cassiinae* (see Randell 1988).

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1. Introduction

This paper revises *Senna* sect. *Psilorhegma*, an endemic group which is sparsely represented outside Australia. The species of the section are divided among three series, one of which is best developed in the arid zone.

The taxa within the arid zone ser. *Subverrucosae* are not easy to define (Bentham 1864, 1871; Symon 1966) probably because in most cases there are no morphological discontinuities between pairs of taxa. Breeding system studies demonstrate that most populations are in fact hybrid swarms, polyploidy is involved in the establishment of hybridization, and apomixis allows the perpetuation of the hybrid progeny (Randell 1970). A reappraisal of taxonomic concepts in this group is thus a pressing need and is given in detail in this paper.

In addition, recent collections especially in Western Australia, have included new species and subspecies which are here described and named.

2. Delimitation of the section

Vogel (1837) described the taxon thus:

"Sepala subobtusata. Stamina 10 fertilia: antherae subaequales, angustae, quadrangulati-lineares, apice in rima brevissime dehiscentes, rima inferne indehiscente et glabra. Legumen compressum, septis transversis completis aut incompletis multiloculare; semina verticalia." [Sepals subobtusate. Stamens 10 fertile; anthers subequal, narrow, linear but four angled, apical seams shortly dehiscent, lower seams indehiscent and glabrous. Pod compressed, transverse septae complete or incomplete, multiloculate; seeds vertical.] The seven species listed by Vogel are still accepted within the section.

Sect. *Psilorhegma* so defined, and accepted by Bentham (1864), Bentham and Hooker (1865), Symon (1966) and Irwin and Barneby (1982), is now known to include some 45 taxa in 16 species. These share the characters listed by Vogel, and some others, viz: anther filaments robust and subequal; perianth bilaterally symmetrical about the plane of the ovary; leaf rachis ending in a mucro.

At one time Bentham (1871) emended the description so as to include *Cassia divaricata* Nees & Bl. This species does have 10 fertile stamens but they are of two different lengths, the lower larger anthers are beaked and the filaments are of two different lengths. In addition the perianth is not symmetrical about the ovary, and the leaf rachis ends in a glandular appendage (De Wit 1955). Bentham (1871) commented on the obvious similarity between *C. divaricata* and *C. biflora* (syn. *S. pallida*, placed by Irwin and Barneby (1982) in sect. *Peiranisia*). It seems that the number of fertile anthers was the sole reason for the placement of *C. divaricata* in sect. *Psilorhegma*, Bentham giving more weight to this single character than to the numerous character differences listed above.

The danger associated with placing too much weight on the single character '10 fertile anthers' is demonstrated by two other unusual species.

2.1 *S. heptanthera* (F. Muell.) Randell agrees with other species of sect. *Psilorhegma* in all characters except that it has only 7 fertile anthers. This is not enough reason to exclude it from sect. *Psilorhegma*. [see discussion in taxonomic section of this paper.]

2.2 *S. tora* (L.) Roxb. agrees with other species of sect. *Chamaefistula* in most characters, including 7 fertile stamens (Randell 1988). However, some flowers of some plants of this species have 10 fertile stamens. This does not mean that those plants should be transferred to sect. *Psilorhegma*.

In this revision, the section is defined in the original sense of Vogel (1837) and thus *C. divaricata* and *S. tora* are excluded.

3. Geographical origin of the section

3.1 Primitive characteristics

When discussing *Senna* Miller, Irwin and Barneby (1982) listed a number of variable characteristics and then deduced those states which they considered were primitive for the genus. Table 1 demonstrates that the primitive condition of almost all of these characters is typical of sect. *Psilorhegma*, a fact not recognised by previous authors.

Thus sect. *Psilorhegma* can be characterised as a group of species sharing a large number of primitive characters. It is here considered that it is likely to be a natural and also an ancient group. Examination of its current distribution patterns may throw some light on its biogeographic history.

3.2 Geographical distributions of sect. *Psilorhegma*

The distributions of taxa in sect. *Psilorhegma* are given in Table 2. It is clear that the greatest genetic diversity occurs in Australia and probably the section has a very long history here. Its history outside Australia may be much shorter.

3.3 Sect. *Psilorhegma* — endemic or immigrant to Australia?

Two groups of workers have produced hypotheses which may describe the history of legumes in particular and *Senna* sect. *Psilorhegma* in particular. The first is that of Raven and Polhill (1981). From fossil evidence and because of present distributions of apparently primitive genera, they proposed that "Africa was a primary site for the evolution of tropical legumes", during the Cretaceous. Primary dispersal from Africa was northward through Laurasia, and legumes radiated from there to Asia, Europe and North America, until some 50 million years before the present (l.c., p.28).

However, after this time no further legumes reached Asia from Africa, for a variety of reasons:

3.3.1 There was a substantial water barrier between Africa and Eurasia following the Paleocene (c. 50 m.y.b.p.).

3.3.2 When Africa and Eurasia were rejoined after the Miocene (17 m.y.b.p.), the migration route was interrupted by the effects of spreading aridity, and the presence of ecologically competitive groups already in Eurasia.

3.3.3 India, though initially carrying many of the legumes of Africa, moved through unfavourable climates on the way to Asia, and suffered decimation of its flora, which is still poor in legumes.

Raven and Polhill (1981) believe that Australia's caesalpinoid genera are 'clearly derived from Asia', such Asian genera having arrived from Africa more than 50 m.y.b.p., while their descendents moved on to Australia 35 m.y. later, after contact between the Australian and Asian plates in the Miocene (c. 15 m.y.b.p.).

These authors would probably expect to find many primitive, widespread representatives in Asia/Malesia, and fewer, more advanced forms in Australia. Exactly the reverse of this situation holds in sect. *Psilorhegma*, (Table 2). Observed distribution patterns do not support the history hypothesised by Raven and Polhill (1981).

An alternative hypothesis was proposed by Johnson and Briggs (1981). They suggested that the three families Myrtaceae, Proteaceae, and Restionaceae have Gondwanic distribution i.e. with many species in the southern continents (South America, Africa and Australia) and poor representation outside those continents.

Table 1. Morphological characteristics found in sect. *Psilorhegma*, with primitive and advanced character states as determined by Irwin and Barneby (1982).

Character	Primitive state	Advanced state	Condition in sect. <i>Psilorhegma</i>
petiolar glands	present	absent	primitive
raceme insertion	in leaf axil	stem above axil	primitive
flower structure	regularly zygomorphic	irregular	primitive
fertile anthers	10	5-7(-10)	primitive
anther size	subequal	of different sizes	primitive
anther apex	truncate	beaked	primitive
anther dehiscence	biporose	uniporose	primitive
filament length	subequal	of different lengths	primitive
style	linear	dilated at stigma	primitive
style length	moderate	shortened	primitive
stigma	pointing upward	pointing inward	primitive
pod	flat	terete (?flat)	primitive
pod dehiscence	by both sutures	indehiscent or by one suture	primitive
ovule number	10-20	less than 10 or more than 20	variable 5-20
seed areole	present	absent	primitive
seed position	parallel to pod axis	perpendicular to pod axis	primitive

N.B. All characters clearly falling into primitive-advanced states have been included.

Table 2. Geographical distribution of taxa in sect. *Psilorhegma*.

Biogeography	Taxa
Australian endemics	40 taxa in 15 species
Australia, New Guinea, Malesia, Pacific isles, Asia (introduced?)	all 3 subspecies of 1 species

Senna Miller is well represented in the floras of South and Central America (Irwin & Barneby 1982), in South and Central Africa (Brenan 1967), and also in Australia (Symon 1966). It is poorly represented in North Africa (see Bentham 1871), in Asia (Irwin & Barneby 1982) and in North America where it is "predominantly of s. extremities of (United States of America)" (Isley 1974, p. 152). It is thus generally confined to southern temperate and tropical areas. It also exhibits Gondwanic distribution, as hypothesised for Myrtaceae, Proteaceae and Restionaceae.

In the Gondwanic Myrtaceae, fossils show that *Eucalyptus* was in Australia before the Miocene (Smith 1982). It is now largely confined to Australia, but a few species occur in New Guinea and some neighbouring islands. Migration probably took place after contact of the Australian and Asian plates following the Miocene (Pryor 1976).

In the Leguminosae, no fossils are known in Australia before Miocene times. However, it has been proposed (Pedley 1986) that *Racosperma* (*Acacia* p.p.) was present in Gondwanic Australia, but did not become widespread until the general drying of the continent in the Miocene. Most species of *Racosperma* are now confined to Australia, but some are found in the Phillipines and Taiwan, and were probably derived from an early emigrant from areas such as Queensland.

The parallels between the distribution patterns of *Eucalyptus* and *Racosperma* are so close that the same explanation has been proposed for both taxa, i.e. presence in Gondwanic Australia and later migration into northern areas after contact between the Australian and Asian plates after the Miocene.

In *Senna* sect. *Psilorhegma* no Australian fossils are known. Most species are confined to Australia. One species occurs in New Guinea and islands of the Pacific (Table 2), but its current distribution may reflect long cultivation by man as a drug plant (de Wit 1955).

Because of similarities with *Eucalyptus* and *Racosperma*, it is here proposed that the ancestor of sect. *Psilorhegma* was also present in Gondwanic Australia and that northward migration took place after contact between the Australian and Asian plates (15 m.y.b.p.).

None of the other infrageneric groupings within *Senna* Miller show such uneven specific distributions between Australia and Asia, so that it is not possible to make similar deductions about their history. But it is likely that related ancestral forms of other sections had similar distributions.

4. Diversity within sect. *Psilorhegma*

4.1 Morphological characteristics

Plants within sect. *Psilorhegma* are uniform in many features (Table 1) especially of flowers, fruit and general habit. Variation is restricted almost entirely to the leaves. Characters typical of the section are discussed below.

4.1.1 Growth form

This shows some variation between the series, e.g., in ser. *Interglandulosae*, plants of the closed forests tend to be scramblers or small trees (0.5-11 m, see Degener 1932, De Wit 1955); in ser. *Subverrucosae* low to tall shrubs (0.2-3 m, notes to various taxa in this paper); in ser. *Oligocladae*, prostrate to low shrubs (notes to various taxa, this paper).

Arid zone shrubs of *S. artemisioides* (ser. *Subverrucosae*) reach reproductive maturity at 3-5 years, and while the life span may exceed 50 years it probably does not reach 100 years (Silander 1983).

4.1.2 Leaf structure

As described above, the ancestor of sect. *Psilorhegma* probably occurred in Gondwanic Australia when most areas were covered with closed forests (Johnson and Briggs 1981). Species of ser. *Interglandulosae* which are still found in such forests show leaf characters which presumably reflect the ancestral condition, i.e., with terete flexible rachises, petioles 10 mm or longer, moderately dense epidermal hairs, stipitate foliar glands, persistent stipules, no wax deposits and many pairs of leaflets. However, many deviations from this pattern are found, such as those in taxa of ser. *Subverrucosae* in the arid zone.

4.1.2.1 Rachises

The most common (and primitive ?) form of rachis is terete, somewhat flexible, and bearing several pairs of leaflets. In a few cases, the rachis is very thick and robust (*S. glutinosa* subsp. *ferraria*), while in another it has become elongate and flexible (*S. cardiosperma* subsp. *flexuosa*). In one case, it is laterally compressed and photosynthetically active (*S. artemisioides*).



Plate 1. Population sample *Randell 236*. a. *gawlerensis*; b, c. *coriacea*; d, e. *petiolaris*; f₁ T.S. leaflet d; f₂ T.S. leaflet e. (all plants from *Randell 236*).

subsp. *petiolaris*). In others the rachis has remained terete in form, but is elongate and photosynthetically important in the absence of functional leaflets (*S. glutinosa* subsp. *charlesiana*; *S. artemisioides* subsp. *circinnata*).

The petiole (i.e. rachis below the lowest leaflets) is usually 6-15 mm long, though shorter forms occur in *S. cardiosperma*, and very elongate photosynthetic petioles occur (in *S. artemisioides* subsp. *petiolaris* and in *S. glutinosa* subsp. *charlesiana* to 6 cm and to 10 cm respectively).

4.1.2.2 Separation of leaflets

The distance between consecutive leaflet pairs is generally strongly correlated with the length of the petiole, i.e. plants with very short petioles have leaflets closely crowded together (subsp. of *S. cardiosperma*), while those with petioles 6-15 mm long have leaflets spaced a similar distance apart. However, those forms with extremely elongate petioles (*S. glutinosa* subsp. *charlesiana* and *S. artemisioides* subsp. *petiolaris*) usually have only one (terminal) pair of leaflets. Hybrid derivatives may have two pairs, but in that case the length of the petiole is usually reduced.

4.1.2.3 Glands of the rachis

The glands occur on the leaf rachis between one (the lowest) or more pairs of leaflets. In some plants of almost all taxa, but not regularly in any taxon, the rachis glands are apparently entirely absent.

These glands may be sessile on the rachis (e.g. all subspecies of *S. artemisioides*) or occur on stipes 1-3 mm long (some subspecies of *S. glutinosa*). The shape of the gland is also variable. Sessile glands may be flattened (rarely almost peltate), cylindrical and blunt-topped, or conical and ending in a fine point. Stalked glands may be cylindrical or conical. The distinction between blunt and pointed glands may not be taxonomically important, but may merely reflect the age of the gland, with pointed glands being those charged with nectar, and flat or blunt glands being those where secretion has either not been produced or has already been discharged.

To date few insects have been seen collecting secretions from these glands. This aspect needs to be investigated in the field.

Bentham (1871) recognized two series within sect. *Psilorhegma*, and defined them by the obvious presence (or absence) of foliar glands in different species. The present study has shown that glands are present in all species. However other characters have been identified which allow the continued recognition of the series.

4.1.2.4 Stipules

Stipules are regularly produced in all taxa of sect. *Psilorhegma*, but as a rule they are shed very early, and can only be observed on three or four leaves closest to the apex. Usually the stipules are acicular, and 2-4 mm in length.

In some taxa the stipules remain on the plant for a much longer time, and in a few cases (e.g. *S. glutinosa* subsp. *pruinosa*) may still be present on old branches. This form (*S. glutinosa* subsp. *pruinosa*) is also unusual in having much broader, falcate stipules (possibly with photosynthetic function).

4.1.2.5 Leaf exudates

Ancestral forms of sect. *Psilorhegma* are presumed to have lacked epidermal deposits of wax or other exudates. However, the character has been developed in the arid-zone ser. *Subverrucosae* perhaps as a mechanism to reduce transpiration. The deposit may take the form of a viscid semi-liquid (e.g. *S. glutinosa* subsp. *glutinosa*), a fine powder (*S. glutinosa* subsp. *pruinosa*), or most commonly a thick sheet over the photosynthetic surface.

4.1.2.6 *Indumentum*

The leaf epidermis of most taxa of sect. *Psilorhegma* is pubescent. The hairs may be sparse, stiff and erect (e.g. *S. costata*), soft and appressed in varying degrees of density (e.g. *S. artemisioides* subsp. \times *artemisioides*), or long and woolly in varying degrees of density (e.g. *S. artemisioides* subsp. *helmsii*). Only rarely does a plant appear almost glabrous.

4.1.2.7 *Number of leaflets*

Most of the taxa in sect. *Psilorhegma* have 4-7 leaflet pairs to each leaf. However, there is great variation in this character, both within and between species, e.g. in *S. artemisioides* the number varies from 0 (subsp. *circinnata*), or 1 (subsp. *petiolaris*) to 8 (subsp. \times *sturtii* and \times *artemisioides*); in *S. cardiosperma* it varies from 2 (subsp. *cardiosperma*) to 14 (subsp. *flexuosa*); in ser. *Interglandulosae* from 7 to 17 pairs.

4.1.2.8 *Sclerophylly and the form of leaflets*

As noted above, the ancestor of sect. *Psilorhegma* probably occurred in closed forests. Species of ser. *Interglandulosae* are still to be found in this habitat. As a group their leaves are characterised by the absence of exudates or dense indumentum, and larger surface area. In the arid-zone ser. *Subverrucosae*, changes from this plan can be seen.

Many of these changes involve the production of scleromorphic characters such as reduction of leaf surface area by fewer large leaflets (e.g. in *S. artemisioides* subsp. *oligophylla*), or many smaller leaflets (e.g. in *S. cardiosperma* subsp.); protective exudates (e.g. in *S. glutinosa* subsp. *glutinosa*); protective hairs (e.g. in *S. artemisioides* subsp. *helmsii*); rigid leaflets (e.g. in *S. glutinosa* subsp. *ferraria*); or isobilateral leaflets (e.g. in *S. artemisioides* subsp. \times *coriacea*).

Another change not directly related to scleromorphy but certainly associated with reduction in the loss of water by transpiration, is the displacement of photosynthesis from leaflets to rachises. This has occurred at least twice, once in the terete petioles of *S. glutinosa* subsp. *charlesiana*, and again in the laterally compressed petioles of *S. artemisioides* subsp. *petiolaris*.

Within one leaf, all the leaflets may be of equal length (*S. glutinosa*); may increase in size from the base of the rachis to the apex (some subspecies of *S. artemisioides*), or may decrease in size from the base to the apex (some subspecies of *S. cardiosperma*).

4.1.3 *Inflorescence*

The basic inflorescence in sect. *Psilorhegma* is a raceme arising in the axil of a leaf. The peduncle carries a bract at the base of each pedicel, but these are normally caducous at anthesis. A few specimens with more persistent bracts are found within several taxa e.g. *S. artemisioides* subsp. *oligophylla*.

In most taxa, the flowering axis (i.e. the peduncle above the level of the lowest pedicel) is much contracted, resulting in a sub-umbellate inflorescence. The true racemose situation is maintained in several taxa (e.g. ser. *Interglandulosae*) and in occasional specimens within other taxa (e.g. *S. artemisioides* subsp. *glaucofolia*).

The pedicels of the individual flowers are slender, without bracteoles and are articulate at the base (i.e. in the axil of the bract).

4.1.4 *Flowers*

Most species of *Senna* Miller are bee pollinated (Polhill, Raven and Stirton 1981). Each flower functions as a unit structure to permit this. Evolutionary changes in any single part of the flower could destroy the effective functioning of the whole flower, and thus would be disadvantageous in terms of selection. As expected, in sect. *Psilorhegma* the flowers are extremely uniform, with the only observed differences between the species involving size of

petals (4-6 mm long in subspecies of *S. cardiosperma*, 7-10 mm long in subspecies of *S. artemisioides*, and 15-25 mm long in subspecies of *S. surattensis*); pubescence of petals (dorsally pubescent in *S. glutinosa* subspecies, glabrous in others); and in the number of fertile anthers (7 in *S. heptanthera*, 10 in all other taxa).

Photographic studies have shown that the petals of several taxa of sect. *Psilorhegma* are UV-reflective, while the stamens are UV-absorbing, thus ensuring that the androecium is clearly visible to insects (Randell unpubl.)

4.1.5 Fruits

Fruits of sect. *Psilorhegma* are always flat, dry and without any semblance of internal pulp, and are without true internal septae. In some taxa, the valves are undulate over the seeds, with ridges on the internal surface of the valves, thus creating the impression of septae (pseudo-septate, e.g. ser. *Interglandulosae*). However, these are not analogous with the septae seen in the terete or cylindrical pods in other sections of *Senna*.

Mature fruits are usually straight (rarely curved and crenate as in *S. costata*, or circinate coiled in *S. artemisioides* subsp. *circinnata*). They are normally glabrous, but in rare cases even mature fruits are pubescent (*S. cladophylla* and *S. cardiosperma* subsp. *cuthbertsonii*). Fruits in sect. *Psilorhegma* open by slow degeneration of both sutures, never by explosive means.

4.1.6 Seed production and germination (subspecies of *S. artemisioides*)

For several subspecies of *S. artemisioides*, Silander (1983) produced estimates of the yearly production of ovules, seeds and fruits by a single plant (Table 3).

Tests showed that not all of the seeds would germinate immediately. About 30% remained in the soil, viable for at least 1 year. Seed stored without water under natural conditions, did not appear to survive more than 10 years (Silander 1983).

Germination tests also showed the occurrence of polyembryony in many taxa (Braun 1859, Symon 1956, Randell 1970). Examination of the developing ovules showed that most embryos were derived asexually from nucellar tissue, and later invaded the embryo sac, competing with any sexual embryo also present. Survival of both embryo types was apparently dependent on the presence of endosperm, as unfertilized ovules degenerated (Randell 1970). Thus there must be strong selective pressure in favour of fertile pollen.

Most seedlings germinating are asexual and thus identical with the seed parent, but in rare cases non-identical twin seedlings are produced (Symon 1956). Such seedling pairs can only be explained if one is asexual and identical with the seedbearing parent, and the other is a sexually derived hybrid from a cross with a morphologically-dissimilar parent (Randell 1970).

Table 3. Propagule production in *S. artemisioides* subspecies (data from Silander 1983).

Propagule	Annual production
ovules	15 per pod
mature seeds	5 per pod
Pods	1.8—2.6 x 1000 per plant
mature seeds	8—13 x 1000 per plant

4.1.7 Chromosome numbers

The basic chromosome number for sect. *Psilorhegma* is $n=14$ (Randell 1970) as a secondary diploid on an ancestral $n=7$ (Irwin and Turner 1960). There are now 8 records of $n=14$ for the group, and another of $n=13$, which, if verified, probably represents a case of

aneuploid reduction. Tetraploids have been recorded in a large number of arid zone taxa (Table 4) and also in cultivated material of *S. surattensis* from India (Darlington and Wylie 1955).

Pollen fertility in the diploids is very high, ranging through 90-95%. That in the rare triploids ($n=42/2$) is very low, 3-60%. However fertility in tetraploids ($n=28$) is relatively high (80-90%) perhaps as a result of the dependence of even asexual embryos on endosperm, and thus in turn on successful pollination and fertilization (Randell 1970).

Examination of several populations containing triploid plants shows that these are rare, and apparently always of hybrid derivation, from diploid/tetraploid crosses (Randell 1970). This implies that the original tetraploids were derived from the somatic doubling of the chromosomes of diploids, perhaps via the asexual nucellar embryos described above. Endopolyploidy of nucellus cells has been described in other genera (Nagl 1978).

Table 4. Chromosome numbers of taxa in sect. *Psilorhegma* (full voucher citation in Randell 1970).

Species	Chromosome number			Author
<i>aciphylla</i>	$n =$	13		Abele in Symon (1966)
<i>artemisioides</i> subsp.				
<i>alicia</i>	$n =$	14,	42/2, 28	Randell
× <i>artemisioides</i>	$n =$		42/2, 28	"
<i>circinnata</i>	$n =$		28	"
× <i>coriacea</i>	$n =$		42/2, 28	"
<i>filifolia</i>	$n =$	14,	42/2, 28	"
<i>helmsii</i>	$n =$		42/2, 28	"
<i>oligophylla</i>	$n =$		42/2, 28	"
<i>petiolaris</i>	$n =$	14,	42/2 28	"
× <i>sturtii</i>	$n =$		42/2, 28	"
<i>symonii</i>	$n =$	14		"
<i>cardiosperma</i> subsp.				
<i>gawlerensis</i>	$n =$	14,	42/2, 28	"
<i>costata</i>	$n =$	14		"
<i>glutinosa</i> subsp.				
<i>chatelainiana</i>	$n =$	14		Turner in Symon* (1966)
<i>glutinosa</i>	$n =$		42/2, 28	Randell
aff. <i>luerssenii</i>	$n =$		c.28	Turner in Symon (1966)
<i>pruinosa</i>	$n =$		28	Randell
<i>surattensis</i>	$2n =$	28,	56	Darlington and Wylie (1955)

*Voucher located since 1970 viz. Brown Ra., S of Carnarvon Ra., W.A., Turner 5412, 25.viii.1965 (PERTH).

4.2 Series within sect. *Psilorhegma*

Within sect. *Psilorhegma* it is possible to recognise three groups of taxa, defined by a combination of fruit, seed and leaf characters. Each of these groups is here treated as a series.

4.2.1 Ser. *Interglandulosae*

The six species of this series are almost entirely restricted to higher-rainfall areas (e.g. of the eastern coast of Australia), but one species is widely distributed in New Guinea, Malesia, the Indian subcontinent and the Pacific Islands, probably reflecting its long history of cultivation as a drug plant. In this series, seeds are glossy, pods are pseudoseptate and usually plump, leaflets are not sclerophyllous, and leaf glands are stipitate.

4.2.2 Ser. *Subverrucosae*

The three species in this series have between them almost thirty subspecies. They are recognised by their highly adapted, sclerophyllous leaflets, long narrow and completely flat pods (not pseudoseptate), and dull seeds. Leaf glands may be stalked or sessile. Taxa in this series are widespread in the arid zone, are morphologically variable, and their breeding systems are compounded by the occurrence of polyploidy, polyembryony and hybridization (Randell 1970).

4.2.3 Ser. *Oligocladae*

This is a group of seven species, all restricted in distribution to monsoonal areas of north west Western Australia and northern parts of the Northern Territory. All have 2-3 pairs of leaflets, and short crenate pods which are wider than the length of the transverse dull seeds.

5. Biology of ser. *Subverrucosae*

5.1 Hybrid populations

Plants of ser. *Subverrucosae* are both very widespread and very common in the arid zone. Over large areas, these shrubs form a conspicuous part of the sclerophyll shrub layer. The plants may be scattered under an open tree canopy (species of *Acacia*, *Casuarina* or *Eucalyptus*), with sparse grass and herb cover. More often *Senna* shrubs occur in moderate to dense stands (density 9,000/ha, Randell, unpubl.; 10,000/ha, Batinoff & Burrows 1973), in populations sometimes containing several thousand plants. In these populations many of the individuals are seedlings and obviously will not survive to maturity. Similar early mortality strikes individuals of other species present, so that ground surface between the *Senna* shrubs is almost bare. Such populations tend to occur in sites that have been subjected to disturbance e.g. water scour, road building, overgrazing by rabbits, or fire. In other areas, there is no obvious evidence of disturbance.

The dense populations* of plants of sect. *Psilorhegma* described above are composed of plants exhibiting considerable morphological diversity. Field observations led to the suggestion that hybridization was the cause of these mixed populations (Symon 1955, 1966, Randell 1969, 1970). Since *Senna* plants are in fact bee-pollinated (Polhill, Raven and Stirton 1981), and outbreeders (Kalin Arroyo 1981), pollen transfer is not a surprising event. However, sterility barriers must have been overcome to allow such extensive hybridization to take place.

Investigation of many populations showed that they were composed predominantly of tetraploid plants. Apomixis (polyembryony) was also demonstrated in many (Randell 1970). Further, many taxa in *Cassia* sens. lat. in Western Australia are self-fertile (Keighery 1982), though it is not clear whether this is due to inbreeding or apomixis. Whatever the mechanism, individual plants are capable of self-replication.

In almost every case the diverse populations were found to be hybrid swarms. These may be simple, composed of two parents and their F1 hybrids. The majority of swarms are more complex than this, with 4-6 parental races, F1 hybrids of almost every possible parental combination, and in addition an extensive array of plants which are probably backcrosses either between F1s, or between F1s and one or other of the parents. These create an almost complete range of morphological types linking all pairs of parental races, with a notable absence of morphological disjunctions separating pairs of taxa.

* In this paper, 'population' is used to signify a group of plants which occupies one locality (generally about 100 m square). Interbreeding may or may not take place. Certainly it is unlikely that plants 100 m apart, on opposite sides of a dense population, will ever interbreed naturally (Ehrlich & Raven 1969, Grant 1981).

This lack of morphological disjunction has perplexed taxonomists since botanical work began in Australia, e.g. Bentham (1871) complained that "all (species) had so little regard to specific distinctness that, whilst I considered I had gone as far as I fairly could in reducing the number of species . . . F. Mueller is of opinion that six or seven of those I have adopted are really variable forms of a single one."

Black (1924) reported a similar experience, indicating that several of the taxa recognized "show a tendency to run into each other, and some forms are difficult to place satisfactorily."

Symon (1966) also had difficulties with these taxa. Observations on the intergradations of morphological forms are frequent in his paper.

The factors listed here (polyploidy, apomixis, self-replication, and hybridization) underlie the very complex mosaic of morphological forms in the arid zone taxa of ser. *Subverrucosae*. Inevitably, the species concept adopted in the taxonomic treatment which follows, was influenced by these factors. Their relationships may be clarified by analysis of some of the hybrid swarms so common in the region.

5.1.1 Analysis of hybrid swarms

An early analysis of one hybrid population was reported by Symon (1955). In the current study, some 100 hybrid populations were studied in various parts of the arid zone (Randell 1969, 1970). Of these, 2 populations have been chosen for detailed analysis.

In each population described, very extensive samples (of c. 150 plants) were made to illustrate the range of morphological forms present, and to allow statistical analysis of variation. When flowering materials were available, cytological fixations were made in the field, to allow later examination of meiosis in the laboratory (for methods, see Randell 1970). Voucher specimens for cytological preparations, and population samples, are lodged in AD.

Each plant in the populations sample was scored for a number of morphological characters (leaf characters were used, as others show little variation, see discussion above), and its chromosome number when known. The characters used were:

- length of petiole (maximum for plant)
- breadth of petiole, if laterally compressed (maximum for plant)
- number of pairs of leaflets (maximum for plant)
- length of leaflet (maximum for plant)
- maximum length/maximum breadth of longest leaflet (for each plant)
- density of hairs on leaflet epidermis (subjective measure)
- thickness of wax on leaflet epidermis (subjective measure)

In the discussion which follows, each morphological form is identified by a single epithet, which will later be presented as a formal taxonomic combination.

5.1.1.1 Analysis of a simple population

Randell 236, Roadside between Pt Augusta and Whyalla, South Australia, 5 km S of Myall creek. (See Plate 1 for sample).

In this population, 150 plants (all plants in the area) were sampled and scored for the morphological characters listed above (no cytological material was available). Graphs showing the frequency of various character states were then prepared (Plate 2).

The graph showing frequency of numbers of pairs of leaflets (i) is unimodal with no discontinuities. However, the graphs of frequency of a number of characters viz. petiole breadth classes (ii), petiole length classes (iii), and leaflet length/breadth classes (iv), are all slightly bimodal, but in each case intermediates occur which obscure the discontinuities. These three graphs support the suggestion that the population is a hybrid swarm with the two parental races (the modes) linked by hybrid offspring (the intermediates).

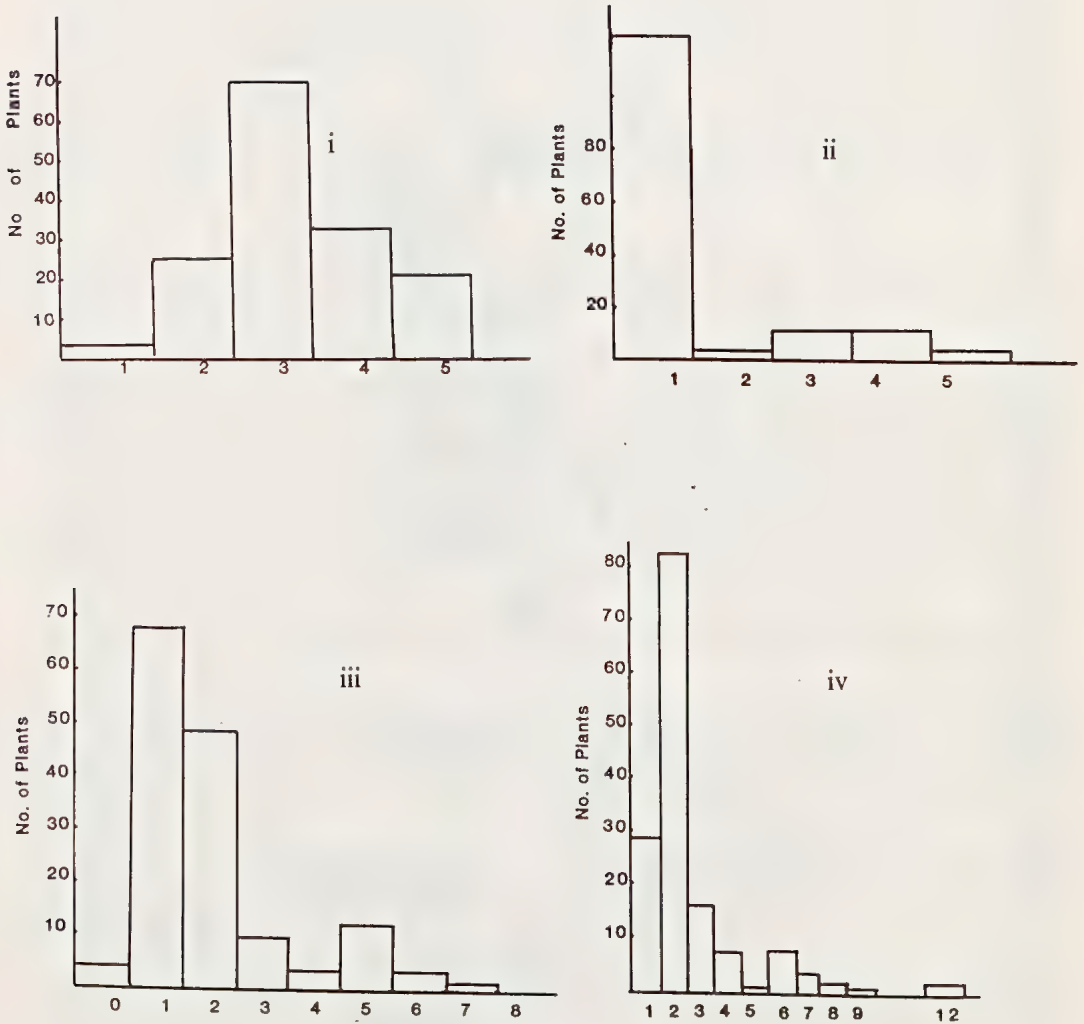


Plate 2. Frequency graphs of various character states in the population sample *Randell 236*.

i. numbers of pairs of leaflets.

ii. petiole breadth classes (mm) classes. 0 terete; 1 laterally compressed, 0.1-0.9mm; 2 laterally compressed, 1-1.9mm; 3 laterally compressed, 2-2.9mm; 4 laterally compressed, 3-3.9mm.

iii. petiole length classes (mm) classes. 1. 0-4.5mm; 2. 5-9.5mm; 3. 10-14.5mm; 4. 15-19.5mm; 5. 20-24.5mm; 6. 25-29.5mm; 7. 30-34.5mm; 8. 35-39.5mm; 9. 40-44.5mm.

iv. leaflet length/breadth ratio classes. 1. 0-1.9; 2. 2-3.9; 3. 4-5.9; 4. 6-7.9; 5. 8-9.9; 6. 10-11.9; 7. 12-13.9; 8. 14-15.9; 9. 16-17.9; 10. 18-19.9; 11. 20-21.9; 12. 22-23.9; 13. 24-25.9.

Plate 3. 3-Dimensional graph of morphological variation in population *Randell 236*. ○ terete petiole; □ laterally compressed petiole; stippling indicates wax deposit. Vertical height is proportional to number of individuals. Y axis-number of pairs of leaflets; X axis- petiole length (mm).

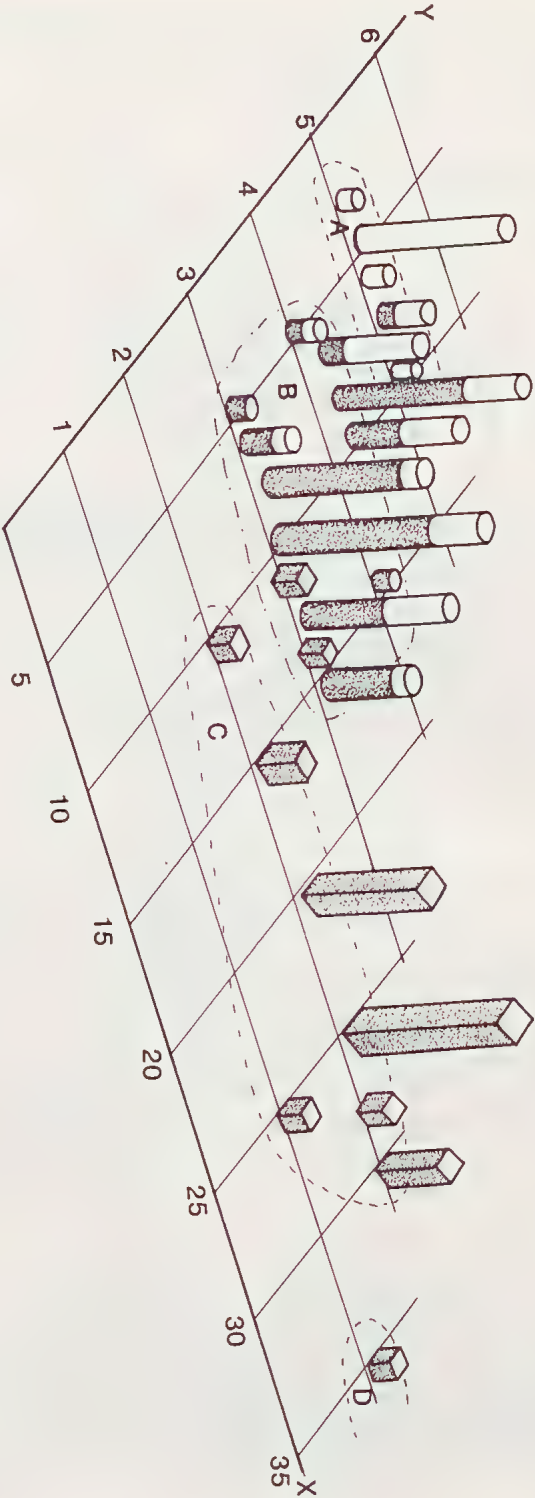


Plate 3 is a three dimensional graph of this population *Randell 236*. Three forms are easily recognized. Group D is distinctive in having laterally compressed petioles and also laterally compressed leaflets (straight in transverse section — see Plate 1). It is designated by the epithet *petiolaris*. Group A is distinctive in having 5 or more pairs of horizontally flattened leaflets on terete petioles. It is designated *gawlerensis*. Group B is intermediate between these extremes in several characters — leaflet number, petiole length, degree of wax deposit. It is designated *coriacea*. Group C is intermediate between A and D in petiole length, petiole breadth, and number of leaflets. The leaflets are horizontal, but inrolled (U shaped in transverse section, see Plate 1). Thus groups B and C bridge the morphological discontinuities between A and D.

The population can then be interpreted as a hybrid swarm linking parents *petiolaris* and *gawlerensis*, with the intermediates, *coriacea*, progeny of that hybridization. Further it is probable that Group C is the progeny of backcrossing between *petiolaris* and *coriacea*.

5.1.1.2 Analysis of a complex population

Randell 224, 300 km North West of Alice Springs, Northern Territory, just outside Yuendumu Settlement (sample Plate 4).

This population sample is composed of the amalgamation of several collections (*B.A. Barlow 1101*, *Barlow 1141* and *Randell 224*) as the three collections were made in the same population at different times of the year, in an attempt to collect as much cytological material as possible. A total of 120 samples was collected. However, it is possible that some plants were sampled more than once in the different collections, while other plants were totally excluded. This fact would affect the validity of mathematical analysis (e.g. by graphs) so this is not attempted here. Double sampling would not affect the conclusions drawn from 3-D graphs, as these are based on the presence of various morphological types, not on the frequency of occurrence.

Plate 5 is a three dimensional graph showing variation within the population sample. Several distinct forms are present (see also Plate 4).

In this population, Group A (*petiolaris*) contains many diploids, Group B (*artemisioides*) is only recorded as tetraploid, while there are no cytological records here for Group C (*glutinosa*). Group D (*helmsii*) is also unknown cytologically here, while both Group E (*filifolia*) and Group F (*alicia*) are known as diploids elsewhere but are not recorded here.

Other plants, which are more or less intermediate morphologically between pairs of these forms, can also be recognised. Group 1 is intermediate between *petiolaris* and *glutinosa*, and one plant is known to be triploid. This supports the suggestion that diploid *petiolaris* was one parent. Plants of Group 1 could be named *petiolaris* × *glutinosa*.

Group 2 is intermediate between *filifolia* and *artemisioides*, and again one plant is triploid. Probably diploid *filifolia* was one parent, and tetraploid *artemisioides* the other. These plants obscure the morphological disjunction between *filifolia* and *artemisioides*, and make it difficult to determine appropriate taxon boundaries.

Group 3 is intermediate between *alicia* and *artemisioides* or hybrids derived from it, and again it is difficult to recognise taxonomic boundaries. Plants would probably be named *alicia* × *artemisioides*.

The single plant in Group 4 is probably derived from *filifolia* × *glutinosa* hybridization.

The three remaining plants (Group 5) are very obscure. The narrow laterally compressed petioles indicate that *petiolaris* was involved somewhere in their ancestry. However, other taxa involved could have been *alicia*, *filifolia*, *artemisioides*, *glutinosa* or their hybrids. It is impossible to place these plants within any taxon, and they would most appropriately be named aff. *petiolaris*.



Plate 4. Population sample *Randell 224*. a. *petiolaris* (*Barlow 1101*); b. *artemisioides*; c. *glutinosa*; d. *helmsii* (all *Barlow 1141*); e. *filifolia* (*Randell 224*); f. *alicia* (*Barlow 1141*).

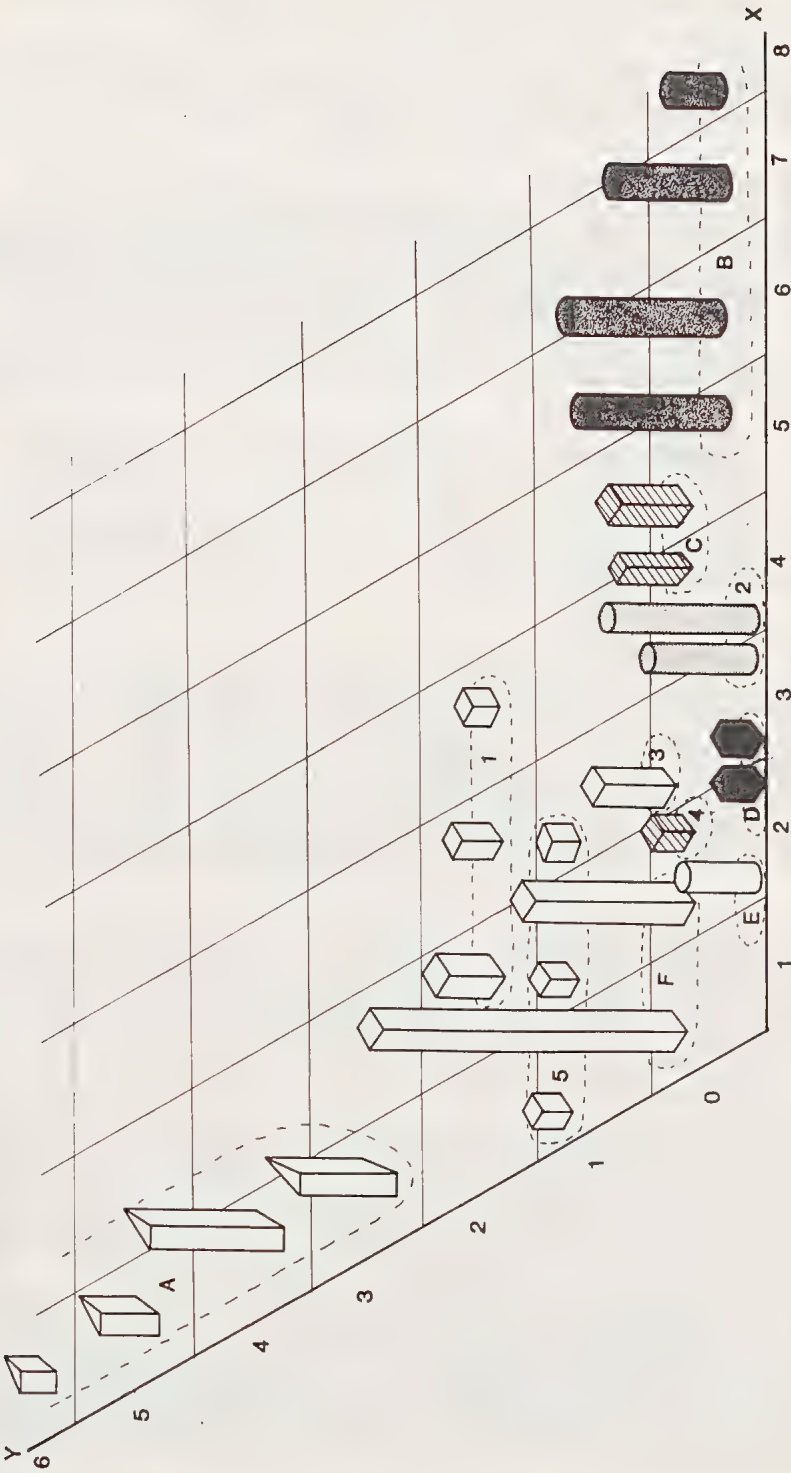


Plate 5. 3-Dimensional graph of morphological variation in population *Randell 224*. ○ terete leaflets; □ horizontal leaflets; △ laterally compressed leaflets; hatching indicates glutinous epidermis; for stippling, dense indicates dense pubescence, sparse indicates sparse pubescence, absence indicates leaflets glabrous; vertical height is proportional to number of individuals; Y axis -breadth (mm) of laterally compressed petioles; X axis -number of pairs of leaflets.

Population *Randell 224* is thus a hybrid swarm containing 6 parental races, 4 identifiable F1 hybrid groups, and also plants of obscure derivation which do not fall within any recognisable taxon.

The two populations described are typical of the approximately 100 examined. Plate 6 summarises all hybridizations observed between all taxa, during the years 1966-86.

5.1.2 *Experimental proof of hybridization*

The hypothesis of widespread hybridization between taxa in the arid zone could be verified in several ways. Hybrids deduced from population studies could be reproduced experimentally. This exercise would be time consuming in a woody group like *Senna*. However, an apparently insurmountable problem arises from the occurrence in many taxa and hybrids of facultative apomixis, as any plant produced by experimental crosspollination could be either a sexually-derived hybrid or an asexual offspring of the seed-bearing plant. The possibility of rare hybridization could not be excluded by the more frequent production of non-hybrid asexual offspring.

It would probably be easier to verify the hypothesis by electrophoretic analysis of enzyme extracts from the population samples. This has not been attempted.

However, an absolute proof of hybridization is the production of non-identical twin seedlings within a single seed (one a sexual hybrid, one an asexual embryo), a phenomenon which has already been recorded (Symon 1956).

5.1.3 *Taxonomic consequences of hybridization*

Since the initial formation of autotetraploids, successful hybridization between tetraploids of different taxa has created a vast array of plants which must be allopolyploid in structure. Backcrossing in hybrid populations has even created plants with morphology very similar to what the autopolyploids may have been. However, it has not been possible to identify chromosomal or morphological markers to determine whether individual plants are autopolyploids or allopolyploids. Taxonomically this has led to the bridging of morphological disjunctions between taxa (Plate 7) and explains the great difficulties faced by taxonomists in ser. *Subverrucosae*.

5.2 *Taxonomy of the hybridizing forms*

Many plant groups contain parental races and hybrid derivatives, and several taxonomic treatments of such groups have now been published in eg. *Gilia*, *Hieracium*, *Betula*, and *Crataegus*. There are also sections in the Code of Botanical Nomenclature which give advice on the formation of names for hybrid individuals and taxa. However, a wide search of the literature has not located any treatment dealing with a situation quite as complex as that encountered in ser. *Subverrucosae*.

The usual taxonomic approach is to name the parents as individual taxa, and to name a hybrid as a separate taxon defined by a particular combination of parents. This may be done when there are morphological or cytological features which permit recognition of the hybrid or parental nature of the majority of plants eg. when parents are largely allopatric (so that the morphology of the 'pure race' can be described), and hybrids are restricted to an area in which the parents are sympatric, and where abnormal morphology can be recognised.

In ser. *Subverrucosae* however, most of the parental forms are sympatric with a number of other forms over most of their range, and hybridize with them at every opportunity. In most cases there is no possibility of describing the 'pure race'. The only exceptions occur in the relict populations of diploids of various forms, but even here the situation is confused by the presence nearby of morphologically-similar polyploids, some of which may be autopolyploids but where the majority must be allopolyploids (see Plate 7).

A hybrid is usually assumed to be defined by a particular combination of parental forms. However, in ser. *Subverrucosae* the same morphological form may be derived from a number of parental combinations (Randell 1970, and notes to various taxa below), or an individual plant may give evidence of having been derived from hybridization and backcrossing involving more than two parental forms (eg. Group 3 in Plate 5 above). Moreover, these hybrid individuals, which are rare or anomalous in other groups, here form the largest proportion of the plants encountered either in the field or in the herbarium.

In most groups, hybrids are of reduced fertility and contribute little progeny to the taxon as a whole. In ser. *Subverrucosae* the hybrids have high pollen fertility (see above) and their ability to produce fertile egg-cells is attested by the frequency with which backcrosses are encountered. In addition, hybrids are fully capable of self-replication by means of asexual seed production. They are thus very important in the biology of the whole series.

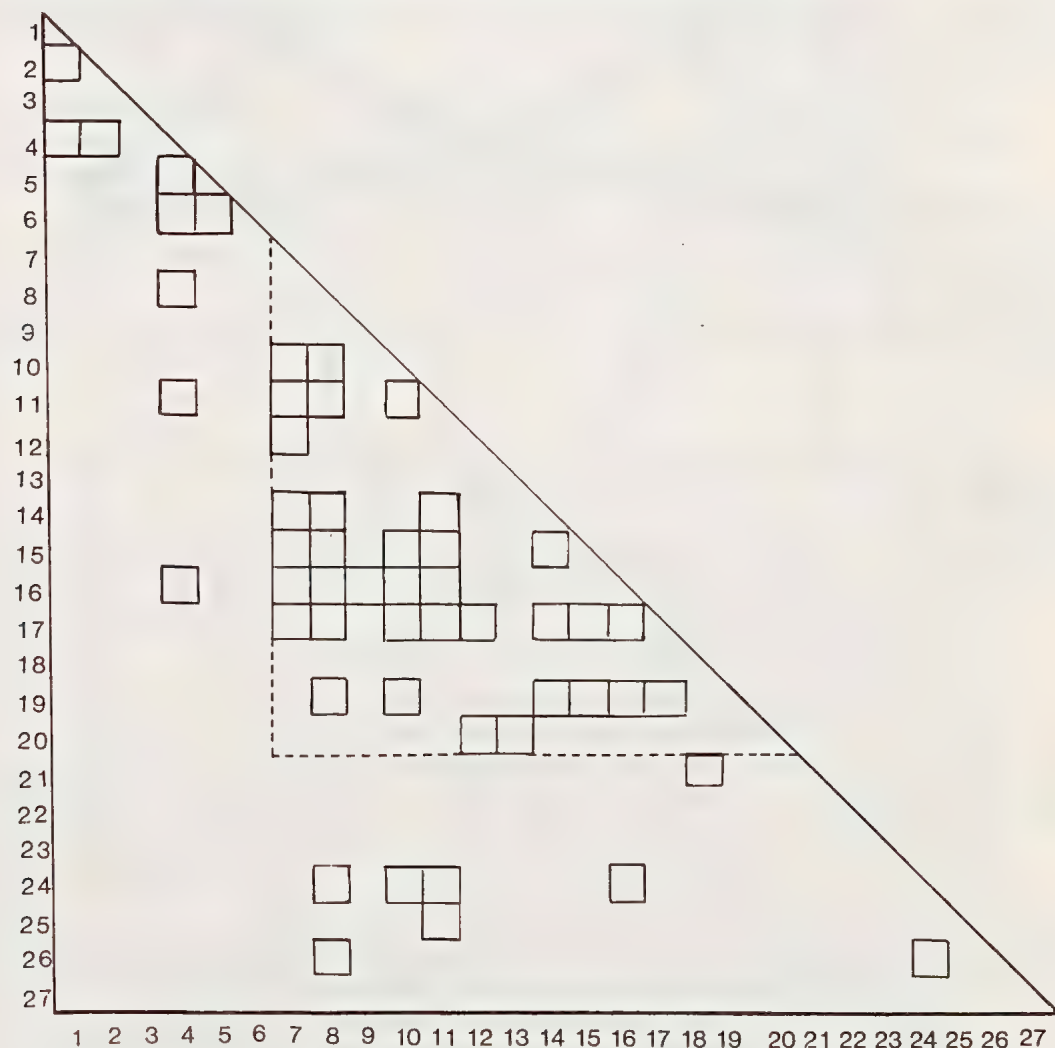


Plate 6. Diagrammatic representation of all observed combinations of taxa which act as parents in hybrid swarms. Taxa: 1. *charlesiana* 2. *chatelainiana* 3. *ferraria* 4. *glutinosa* 5. *luerssenii* 6. *pruinosa* 7. *alicia* 8. *artemisioides* 9. *circinnata* 10. *coriacea* 11. *filifolia* 12. *glaucifolia* 13. *hamersleyensis* 14. *helmsii* 15. *oligophylla* 16. *petiolaris* 17. *quadrifolia* 18. *stricta* 19. *sturtii* 20. *symonii* 21. *cardiosperma* 22. *cuthbertsonii* 23. *flexuosa* 24. *gawlerensis* 25. *manicula* 26. *microphylla* 27. *pilocarina*.

As emphasised above, the high frequency and widespread occurrence of hybridization in this group means that in most cases there are no morphological discontinuities between pairs of taxa e.g. *filifolia* and *artemisioides* are distinguishable in population *Randell 224* by the number of leaflets and their numbers of hairs (Plates 4, 5). But even within this population, there are plants which are morphologically intermediate between the taxa. Examination of many hundreds of herbarium specimens (usually lacking any information of population structure) has revealed a continuous range of specimens linking the two forms. Overall there are no morphological discontinuities between *filifolia* and *artemisioides*.

Similarly, there are continuous ranges of specimens linking pairs of taxa such as *artemisioides* and *sturtii*, *sturtii* and *helmsii*, *helmsii* and *oligophylla*, *oligophylla* and *coriacea*, etc. etc.

These important characteristics make it very clear that the traditional taxonomic approach cannot be applied in ser. *Subverrucosae*, and that a new approach must be developed. This development is constrained by several external factors:

1. The absolute necessity of producing an approach which will be of practical use to taxonomists, ecologists, naturalists and others working in many fields.
2. The absolute necessity of adopting a treatment which does not conflict with the rules of ICBN, however much it differs from that usually applied by plant taxonomists.
3. The desirability of producing a treatment which reflects (in a greatly simplified manner) the true biological situation in the group.

The species concept developed using this new approach is obviously imperfect, and will no doubt be improved when other workers encounter situations as complex as that in ser. *Subverrucosae*.

5.2.1 *Three possible approaches to the recognition of taxa*

The recognition of taxa in this group could be approached in a number of ways. Three are discussed below.

- a. All the forms linked by unbroken ranges of intermediate plants could be united into a single species, with no infraspecific taxa recognised because of the absence of morphological gaps between forms. This would produce one extremely large, extremely variable, extremely widespread species. Some twenty species would disappear into synonymy, even though they are recognisable morphological forms.

This approach has been rejected, as much important information on the morphology, cytology, and distribution of the constituent forms would be lost.

- b. Despite the absence of morphological gaps between forms, each could be treated as a separate species, with specific limits set arbitrarily. This is equivalent to the approach of Bentham (1864, 1871) and Symon (1966). This approach leads to the situation where a single population, which is obviously a hybrid swarm, can contain 6 parental species, and other species of hybrid derivation, with none of the species being separable by morphological gaps (see discussion of population *Randell 224* above).

This approach has also been rejected as information about the relationships between various forms (shown by the relative frequency of hybridization) would be lost.

- c. All the forms could be treated as separate subspecies. In this case, each of the constituent forms would retain taxonomic status, and information on their cytology, morphology and distribution would be accessible. However, there are still no morphological disjunctions between forms, and limits would have to be set arbitrarily. This flaw is probably more acceptable at the subspecific than the specific level, and it is this compromise which has been adopted.

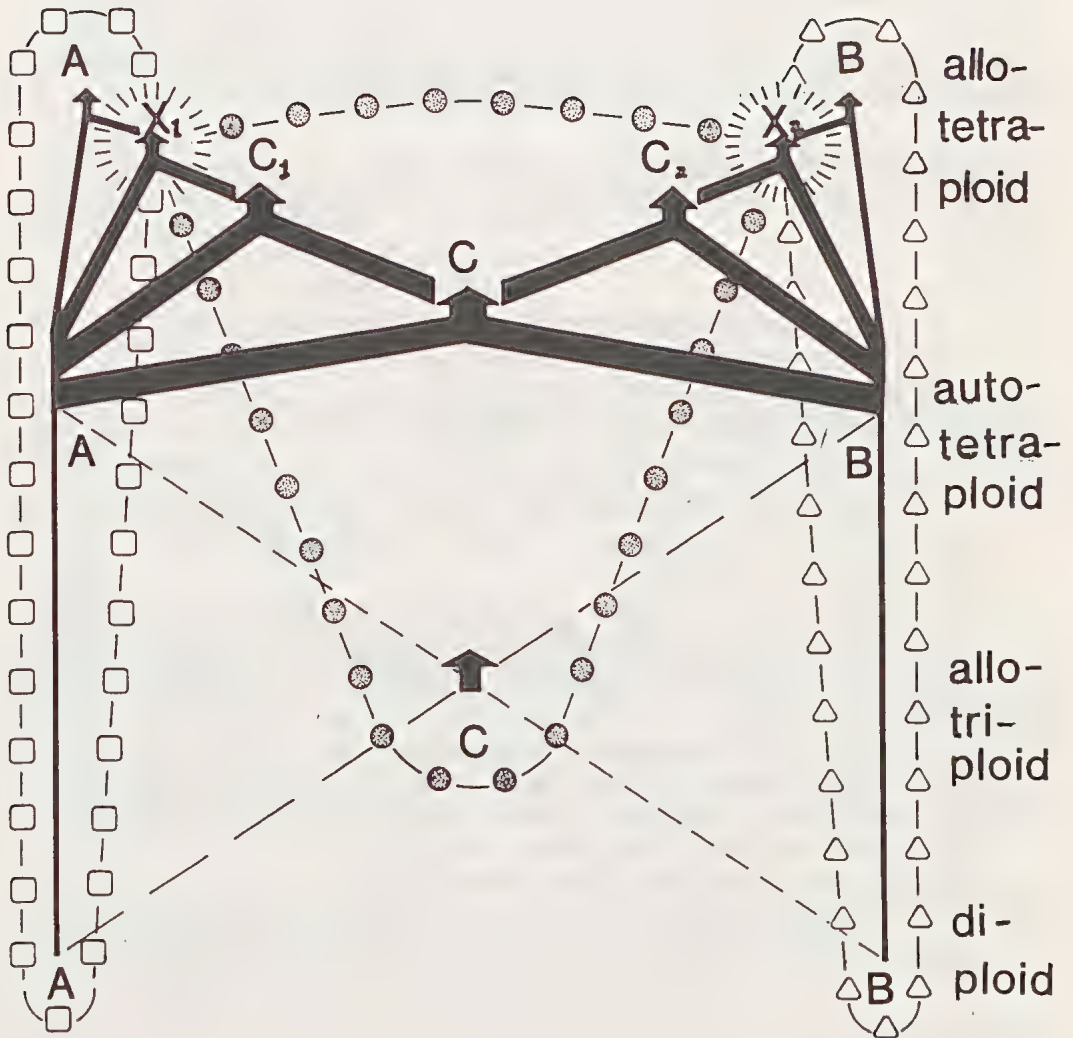


Plate 7. Illustration of the consequences of hybridization and repeated backcrossing between two hypothetical taxa A and B, which have both diploid and autotetraploid races, and their hybrid taxon C, which is triploid and allotetraploid. Width of bars proportional to frequency of crossing. Limits of morphological taxa - $\square - \square - A$; - $\triangle - \triangle - B$; - $\circ - \circ - C$; X area of taxonomic uncertainty. Within this last area, morphological taxon limits must be set arbitrarily if there are no morphological or cytological characters available to separate autotetraploids from allotetraploids (i.e. $X1 = \text{either } A \text{ or } C$, $X2 = \text{either } B \text{ or } C$).

Populations of ser. *Subverrucosae* frequently contain plants referable to A/A1, X1, C1, C, C2, X2, and B1/B, and as there are no characters available to separate autopolyploids from allopolyploids, morphological limits must be set arbitrarily.

Many populations contain even more than 2 parental races (eg. Randell 224), so that the number of parental combinations and parental-hybrid combinations becomes too large and complex to illustrate on a 2-dimensional figure.

When this approach is followed, the subspecies are seen to fall into three natural groups, which are ranked as species because they are recognisable by a number of morphological characters (Table 5). However, the morphological disjunctions between them are not complete, being obscured by relatively infrequent interspecific hybridization. On the other hand, infraspecific hybridization is much more frequent (Plate 6).

Use of the subspecific level, not previously applied in this section, has had the unexpected advantage of removing constraints of priority on the choice of subspecific epithets. In most cases, the epithet currently most widely applied to the taxon has been retained at the new level, but misleading, misapplied or previously confused epithets have been avoided.

Table 5. Morphological characteristics of three species of ser. *Subverrucosae*.

<i>S. glutinosa</i>	petals 11—15 mm long, pubescent
<i>S. artemisioides</i>	petals 7—10 mm long, glabrous
<i>S. cardiosperma</i>	petals 4—6 mm long, glabrous

5.2.2 *The species concept adopted in ser. Subverrucosae*

The species concept adopted here may be summarised as follows:

a. Subspecies are recognised for a number of reasons.

a.1. Morphologically recognisable races which are known to contain diploids are subspecies. They usually also contain morphologically-similar tetraploids. Morphological limits are set arbitrarily.

a.2. Morphologically recognisable races which contain extremes of variation and are probably derived from unrecorded diploids are subspecies. Morphological limits are set arbitrarily. (Most of these taxa are closely correlated with species recognised by earlier authors.)

a.3. Morphologically recognisable races which are always of hybrid derivation (even when acting as parents of hybrid swarms), which are frequently encountered, which have wide distribution and may be derived from several parental combinations, are hybrid subspecies. Morphological limits are set arbitrarily. (Many of these are closely correlated with taxa recognised by previous authors.)

In the majority of cases, there are no morphological disjunctions between subspecies, and taxon limits must be set arbitrarily (see Plate 7 for explanation).

b. Species are groups of subspecies, and are separated by morphological disjunctions. They are recognised by a number of morphological characters (Table 5). However, interspecific hybridization may obscure the gaps between species.

c. Hybrid forms which are not frequently encountered are named by either of the following:

c.1. a combination of the names of the parents, if these are readily identifiable.

c.2. indicating affinity with a single parent, when the other (or others) is not readily identifiable.

However, despite the large number of taxa recognised as being involved in the tetraploid hybrid swarms, there are still some plants which cannot be assigned to any taxon (see discussion of population *Randell 224* above).

5.2.3 *A comparable situation in another genus*

In the species *Epilobium billardierianum* a somewhat similar but simpler situation exists. In New Zealand, there are two entities which are always separated by morphological disjunctions and which do not usually hybridize. They have, understandably, been treated as separate species. However, in Australia these same taxa hybridize widely and freely, with the production of stable intermediates. The taxa are treated as subspecies in Australia (ie. *E. billardierianum* subsp.) and therefore the New Zealand taxa are also treated as subspecies, despite their morphological distinction there (Raven and Raven 1976).

In addition the Australian hybrid progeny are numerous, widespread and apparently stable in the wild. They have been treated as a third, hybrid, subspecies of *E. billardierianum* (Raven and Raven l.c.)

Although the situation described is much simpler than that in ser. *Subverrucosae*, these authors have taken a similar approach in recognising parental and hybrid taxa as subspecies of the one species.

6. Suggested history of ser. *Subverrucosae* in the arid-zone (cognisant of current knowledge of biology and biogeography).

Three species *S. glutinosa*, *S. cardiosperma* and *S. artemisioides* are widespread in the eremean zone. Each of them comprises a number of sclerophyllous morphological forms and in each some forms are known to exhibit polyploidy, hybridization and polyembryony. Their success in the arid zone is probably associated with these characteristics (Randell 1970), which are not known elsewhere in Senna.

6.1 Origin of scleromorphy

Early discussions of the sclerophyllous habit assumed that it was an adaptation allowing plants to survive in semi-arid or arid conditions. In recent years this simplistic view has been questioned. Beadle (1954, 1966) showed that the development of sclerophylly is associated with growth in soils deficient in phosphorous. Johnson and Briggs (1981) accepted this hypothesis. They suggested that sclerophylly arose in Australian plants on a number of different occasions, one of them among plants of closed forests and nutrient-deficient soils of mid-Cretaceous Gondwanaland. These plants were then pre-adapted to later, more arid, conditions of reduced or seasonal rainfall.

In sect. *Psilorhegma*, morphologically unspecialised plants are currently found in closed forests of the eastern coast of Australia (ie. ser. *Interglandulosae*), probably reflecting the occurrence of the ancestor. Scleromorphic forms of ser. *Subverrucosae* probably arose first in similar closed forests, on areas of poorer soil.

6.2 Expansion from closed forests

Subsequent to the Cretaceous, large areas of Australia underwent periods of aridity (Quilty 1984), these still occurring in the Quaternary (Bowler 1982). This aridity reduced the extent of the closed forests, opening up tracts of land for invasion by scleromorphic forms. Plants of ser. *Subverrucosae* were probably present among these scleromorphs, and became widespread in arid Australia.

6.3 Isolation of relict populations

Some relict populations of diploid races of ser. *Subverrucosae* (eg. *S. cardiosperma* subsp. *gawlerensis*, *S. artemisioides* subsp. *filifolia*, and *S. glutinosa* subsp. *chatelainiana*) have been located. These populations are always associated with rocky upland areas.

During some post-cretaceous period of intense aridity (Bowler 1982), populations of the widespread scleromorphic ancestors of ser. *Subverrucosae* suffered intense selective pressures. Probably most of those occupying plains were eliminated, while some populations of rocky crests and upper slopes took advantage of surface water trapped there (Mabbutt 1984) and were able to survive. As periods of intense aridity recurred over the past 500 000 years (Bowler 1982), it is possible that these relict populations were isolated at different times.

6.4 Evolution in relict populations

Thus ser. *Subverrucosae* was represented by a number of small isolated populations in different upland areas. Each such relict population carried a different sample of the parental gene-pool and was subject independently to the combined effects of selection and genetic drift.

Surviving relict populations underwent rapid morphological changes due to these genetic forces, thus producing a number of new morphological taxa. However, each would have retained gene combinations which were important for survival e.g. structural adaptations of the flower allowing bee pollination (Polhill, Raven and Stirton 1981).

Kalin Arroyo (1981) showed that self-incompatibility is the most common breeding-system in the Caesalpinioideae. If it was operative in these small populations, there would have been greatly reduced probability of successful seed-set, due to the reduced number of compatible style/pollen tube combinations.

There would have been great selective advantage for mechanisms which bypassed the need for sexual reproduction (i.e. vegetative reproduction or apomixis), or which upset the genetic controls of self-incompatibility (e.g. polyploidy). It seems probable that the only relict populations to survive would be those which evolved a mechanism such as apomixis or polyploidy.

A comparable situation has been reported in Western Australian populations of *Stylidium crassifolium* R. Br. Diploids carry a system of lethal genes which enforce self-incompatibility. Whenever very small populations of this species have been located, analysis has shown the plants to be polyploid (Banyard and James 1979).

6.5 Expansion of the taxa from relict populations

During the Quaternary, the climate has oscillated between very arid and less arid periods (Bowler 1982). During the less arid periods the new taxa expanded from their refugia, and many became widespread over the previously denuded plains. This expansion must have taken place not later than 18 000 y.b.p. as at that time a major expansion of the sand dunes took place (Bowler 1982) and many taxa now exhibit disjunct distributions around these sand areas (Randell and Symon 1976). However, it could have taken place much earlier.

Later fluctuations in climate with arid period succeeding less arid (Bowler 1982, Williams 1984) were probably associated with later contractions and expansions of the surviving taxa.

6.6 Hybridization between taxa — the current situation

As described above, most of these new taxa of the plains carry genetic mechanisms for polyploidy and/or asexual seed set. Polyploidy not only overcame genetic systems enforcing self-incompatibility within taxa, it also overcame chromosomal incompatibility barriers between taxa, permitting hybridization. Currently this is frequent whenever taxa are sympatric. Hybrid individuals produced are usually self-perpetuating, as the mechanism for asexual seed-set is also widespread. Thus dense and complex hybrid swarms are established over much of central Australia (Randell 1970).

Relict populations may have been partially reproductively isolated in the diploid state (Randell 1970) and were thus incipient species. However, hybridization between these taxa is now so frequent that none of them can be regarded as a good species. The appropriate taxonomic level was discussed previously.

This postulated history of ser. *Subverrucosae* may be summarised as follows:

- a) a non-sclerophyllous ancestor was present in closed forests of Gondwanic Australia.
- b) sclerophyllous forms evolved in areas of poorer soils.
- c) sclerophyllous forms became widespread when rainfall was reduced.
- d) relict populations were isolated during periods of intense aridity. Polyploidy and apomixis became established.
- e) new taxa evolved during periods of isolation.
- f) taxa expanded in less arid periods, and hybridization took place when taxa became sympatric.
- g) the contraction- expansion- hybridization cycle may have been repeated a number of times during the last million years.

7. The taxonomic revision

A standardised format has been followed in the following revision.

For each monotypic species a full description is given together with an illustration of the form of the species. Flowers, fruit, androecia and habit are shown.

For those species with several subspecies, the species heading includes a full description of flowers and fruit, and these are also illustrated. The description of individual subspecies is restricted to vegetative details, as it is in these that they vary, and only the leaf structure of each is illustrated.

When establishing new taxa, I have sometimes listed paratypes. These may be considered as syntypes but have no nomenclatural significance.

In many older taxa, lectotypes have had to be chosen. All available syntypes have been checked against the protologue, and any not agreeing with it were excluded from consideration. If several agreed with it, the final choice was influenced by the state of the specimens i.e. whether fragmentary, fruiting only, flowering and fruiting etc. Decisions influenced by other factors are mentioned in the text.

Within the taxa of ser. *Subverrucosae*, the presumed autotetraploid ('parental') form is that described and illustrated. Specimens for citation are also chosen from 'parental' plants.

More frequently encountered and more widely distributed are allotetraploid or hybrid plants. These are neither described, illustrated, nor cited unless fewer than 20 specimens of the taxon were seen. However keys have been written to include these hybrid plants. Any plant encountered should be identified either (i) to a single taxon name, or (ii) to a position between the names of 2 taxa.

I have endeavoured to demonstrate the full extent of the distribution range. Where the taxon has been collected less than 20 times, individual localities are mapped. Where the taxon has been collected 21-500 times, only general areas are indicated on the distribution map.

I have also attempted to cite at least one 'parental' specimen of each taxon in each major Australian Herbarium.

After describing each taxon, and giving information on its distribution and cytology, I have included some notes. These list related taxa, suggest methods of naming intermediate plants, and also make suggestions about the need for future research.

Senna* sect. *Psilorhegma

Senna* sect. *Psilorhegma (J. Vogel) Irwin & Barneby Mem. New York Bot. Gard. 35: 77 (1982).

Lectotype species: Cassia glauca Lam. syn. *Senna surattensis* (Burman f.) Irwin & Barneby subsp. *sulfurea* (Colladon) Randell, fide Symon, *Trans. Roy. Soc. S. Australia* 90: 77 (1966).

Synonyms

1. *Cassia* sect. *Psilorhegma* J. Vogel, Gen. Cass. syn. 8: 47 (1837); Benth., *Fl. Austral.* 2: 284 (1864). *Cassia* [subgen. *Senna* (Miller) Benth.] sect. *Psilorhegma* (J. Vogel) Benth., *Trans. Linn. Soc. London*, 27: 513, 554 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 77 (1966).

Lectotype: as above.

2. *Cassia* subgen. *Psilorhegma* (J. Vogel) Baker in Hook., *Fl. Brit. Ind.* 2: 265 (1878).

Lectotype: as above.

3. *Psilorhegma* (J. Vogel) Britton and Rose, *N. Amer. Fl.* 23: 255 (1930).

Lectotype: as above.

Description

Shrubs or small trees; *leaves* 2-20 cm long, once-pinnate, alternate; *leaflets* 1-16 pairs, (occasionally all caducous and then petioles functioning as phyllodes), terete to broad elliptic, glabrous or pubescent; *inflorescence* axillary, racemose but often appearing subumbellate because of the contraction of the rachis; *sepals* 5, obovate, green or brown; *petals* 5 obovate, clawed, 5-35 mm long, yellow or golden, glabrous or pubescent dorsally; *anthers* 10, all fertile, shorter than the petals, all of one size or 1-3 slightly longer, oblong, truncate, dehiscent only by apical pores; *filaments* shorter than anthers, all one length or 1-3 slightly longer, robust; *ovary* slightly longer than anthers, curved, pubescent or glabrous, with 5-12 ovules; *style* short; *stigma* terminal, punctiform; *pod* linear, flat, without pith between the seeds, valves papery, dehiscent by degeneration of both sutures; *seeds* oval, dark, dull or glossy, with an areole on each face; *funicle* filiform.

Distribution and ecology

Occurs in closed forests to open, semi-arid shrublands.

Note

As discussed in the introduction, Bentham (1871) recognised two series within sect. *Psilorhegma*, and defined them by the presence or absence of foliar glands in the constituent species. The present study has shown that glands are present in all species, and Bentham's definition cannot be maintained. However, groups of species, roughly corresponding with those of Bentham, can be recognised by a combination of seed and fruit characters, and are retained as series. In addition a third series, also defined by fruit characters, is recognised here.

Key to the series of sect. *Psilorhegma*

1. Seeds glossy; pods flat or plump, with ridges on the inner faces of the valves; leaves not usually sclerophyllous a. ser. *Interglandulosae*
1. Seeds dull; pods flat without ridges on the inner faces of the valves; leaves usually highly modified and/or sclerophyllous:
 2. Leaflets 4-16 pairs b. ser. *Subverrucosae*
 2. Leaflets (0-) 1-3 pairs only:
 3. Inflorescences along the stems; pods curved, crenate c. ser. *Oligocladae*
 3. Inflorescences at the end of the stems; pods straight, or coiled, entire b. ser. *Subverrucosae*

a. Ser. *Interlandulosae*

a. *Senna* Miller [sect. *Psilorhegma* (J. Vogel) Irwin & Barneby] ser. *Interlandulosae* (Benth.) Randell, comb. nov.

Basionym: *Cassia* L. [subg. *Senna* (Miller) Benth. sect. *Psilorhegma* (J. Vogel) Benth.] ser. *Interlandulosae* Benth., *Trans. Linn. Soc. London* 27: 554 (1871) p.p., excluding *C. leptoclada*, *C. goniodes*, *C. divaricata*, and *C. chatelainiana*.

Lectotype species: *S. surattensis* (Burman f.) Irwin & Barneby subsp. *sulfurea* (Colladon) Randell as it is the lectotype of the section.

Description

Shrubs or small trees, *leaves* 3-20 cm long; *leaflets* 2-16 pairs, not usually sclerophyllous; *glands* 1-many, stipitate; *petals* obovate, 15-30 mm long; *Pods* 8-15 cm long, 5-15 mm broad, with ridges on the inner surfaces of the valves; *seeds* glossy black.

Distribution and ecology

Most species are restricted to wet sclerophyll or subtropical rainforests of Australia and the Pacific Islands. However two species have extended their range into Australian grasslands, usually under *Eucalyptus* species.

Key to the species of ser. *Interlandulosae*

1. Petioles 2-15 mm long; leaflets appearing crowded:
 2. Peduncles 10-20 (-30) mm long; glands 1-2 5. *S. coronilloides*
 2. Peduncles 30-50 (-100) mm long; glands 3-many:
 3. Petioles 2-5 mm long; leaflets linear usually revolute, to 6 mm broad; usually pubescent 4. *S. aciphylla*
 3. Petioles 6-10 mm long; leaflets elliptic to obovate, rarely revolute, 5-10 mm broad; not obviously pubescent 3. *S. odorata*
1. Petioles 15-40 mm long; leaflets not appearing crowded:
 4. Pods narrow (5-10 mm broad), oval in section:
 5. Leaflets narrow-elliptic, 3-8 mm broad; pods curved or coiled $\frac{1}{2}$ - $\frac{3}{4}$ circle; flowers 5-8 per peduncle. 6. *S. costata*
 5. Leaflets broad elliptic, 10-15 mm broad; pod curved through $\frac{1}{4}$ circle; flowers 2-5 per peduncle. 2. *S. acclinis*
 4. Pods broad (10-25 mm broad), quite flat 1. *S. surattensis*

1. *S. surattensis* (Burman f.) Irwin & Barneby, *Mem. New York Bot. Gard.* 35: 79 (1982).

Basionym: *Cassia surattensis* Burman f., *Fl. indica* 97 (1768); De Wit, *Webbia* 11: 269 (1955); Symon, *Trans. Roy. Soc. S. Australia* 90: 100 (1966); Verdcourt, *Botany Bulletin* 11, P.N.G. (1979).

Holotype: not seen, cited by Irwin & Barneby (l.c., p.79) as "G, originally labelled *C. sumatrensis* but the epithet corrected in an old hand to '*surattensis*'".

The above basionym applies to both the species and the type subspecies. All synonyms are listed under the subspecies to which they apply.

Description

Low shrub or small tree, reaching 7 m in New Guinea, and 11 m in Hawaii; *leaves* 5-15 (-20) cm long; *leaflets* (2-) 3-10 pairs, elliptic, oblong, oblanceolate, or oval to obovate, the longest 2-7 (-10) cm long, increasing in size from the base of the rachis, apex obtuse to

emarginate, indumentum variable, sometimes golden pubescent on both surfaces, or glabrescent, or almost glabrous on one or both surfaces; *glands* 1-5, stipitate, to 4 mm long, between lower leaflet pairs; *stipules* acicular, usually deciduous, rarely more or less persistent; *petioles* 10-40 (-65) mm long, channelled above; *inflorescences* in the axils of upper leaves; *peduncles* 20-60 mm long; *pedicels* 15-30 mm long, solitary; *bracts* more or less persistent, acicular to obovate, 5-8 x 1-3 mm (occasionally a stipitate gland appearing beside a pedicel in the axil of a bract); *petals* subequal 10-30 mm long in different subspecies, pubescent or glabrous dorsally; *anthers* 10, all fertile; *filaments* 1-2 mm long (rarely one abaxial filament to 5 mm), robust; *ovary* sparsely to densely hairy; *pod* 8-15 cm x 10-15 mm, straight, broad, quite flat, somewhat compressed between the seeds; *seeds* oval, with linear areoles.

Distribution

A species widespread through eastern and northern Australia, New Caledonia, New Guinea, Malesia, and Pacific Islands as far east as the Hawaiian group. Widely cultivated as a drug plant in Malesia and on the Indian subcontinent, so that the natural limits of distribution are now obscured.

Notes

This is a very critical group, whose classification has long given rise to problems, not least because of long cultivation of some of its members as drug plants (De Wit 1955, Irwin & Barneby 1982). However, the Australian origin of the complex, as part of sect. *Psilorhegma*, is now beyond question (see above) and this has allowed a new perspective to study of the whole group, instead of a piecemeal approach considering separately the specimens from individual geographical areas.

Bentham (1871) also considered the whole range of material available, but there were very few collections at that time. He recognized four separate species, *C. retusa* from Australia, *C. gaudichaudii* from Hawaii, *C. deplanchii* from New Caledonia, and *C. glauca* as a single name for the two constituent taxa "*C. glauca*" and "*C. suffruticosa*" which he was unable to separate consistently. However, part of his problem was due to the inclusion of specimens of *S. acclinis* from eastern Australia within this material.

De Wit (1955) dealt only with materials occurring in Malesia and hence excluded *C. gaudichaudii* and *C. deplanchii* from his study. He recognized two species, *C. surattensis* (syn. *C. glauca* sensu Bentham) and *C. retusa*. This approach was followed by Symon when considering the Australian material in 1966. However, in New Guinea, Verdcourt (1979) did not recognize *C. retusa* as a separate species, including all specimens within an extremely variable *C. surattensis*.

Irwin & Barneby (1982) dealt only with the forms naturalized in the Americas, which were all referable to *C. glauca* sensu Bentham. Within their material, they were able to recognize two taxa, *C. surattensis* Burman f., and *C. sulfurea* Colladon, roughly equivalent to the subgroups Bentham had been unable to separate.

The present study has shown Australian specimens which are intermediate between the two 'species' recognized by Irwin and Barneby. Similarly, Verdcourt (1979) described New Guinea specimens which fall between the species boundaries recognized in America. It is obvious that the separation possible in American material cannot be extrapolated to cover Asian/Australian materials. Nevertheless, materials from Australia and Malesia (*C. glauca* sensu Bentham) are extremely variable, and the extremes are very different from each other. The present revision treats the extremes as subspecies of the one species, an approach comparable with that adopted for other polytypic species later in this paper. Intermediates are placed with the subspecies they most resemble.

Irwin & Barneby (1982) did not consider materials from the "*retusa* - *gaudichaudii* - *deplanchii*" group, as these do not occur in the Americas. Present study indicates few differences between the types of *C. retusa* and *C. deplanchii*, and they are not separable at the species level. The taxon *C. gaudichaudii* is itself rather variable (Degener 1932), and Bentham (1871) noted its similarity to *C. deplanchii*. It is probable that these three names apply to variable materials from different parts of the range of a single widespread taxon. As this variable taxon is very similar to *C. glauca* sensu Bentham, and there are apparently intermediate specimens in Malesia and New Guinea (De Wit 1955, Verdcourt 1979), it is treated as a third subspecies of the same species.

Key to the subspecies of *S. surattensis*

1. Leaflets 6-10 pairs, elliptic to oblong to ovate, discolourous 1. subsp. *surattensis*
1. Leaflets 2-5 (-6) pairs, oblong to oval to obovate, concolourous:
 2. Leaflets (2-) 3-5 (-6) pairs, the longest 20-50 (-60) mm long; petioles 10-30 mm long; longest petals 10-15 mm long 3. subsp. *retusa*
 2. Leaflets 4-6 pairs, the longest 40-70 (-100) mm long; petioles 20-40 mm long; longest petals 15-30 mm long 2. subsp. *sulfurea*

1.1 subsp. *surattensis*.

Basionym and *holotype*: as for the species.

Synonyms

1. *Cassia fastigiata* Vahl, *Symb. bot.* 3: 57 (1794).

Holotype: not seen, cited by Irwin & Barneby (l.c., p. 79) thus "caret in hb. Vahl., C, but the protologue decisive."

2. *Cassia suffruticosa* Roth, Nov. sp. pl. 213 (1821); Benth., *Fl. Austral.* 2: 285 (1864).

Holotype: not seen, cited by Irwin & Barneby (l.c., p. 79) thus "no typus found, but the protologue decisive."

3. *Senna speciosa* Roxb., *Fl. ind.* ed. 2: 347 (1832).

Holotype: K (photo).

4. *C. glauca* sensu Bentham, *Trans. Linn. Soc., London* 27: 555 (1871), non Lam.

5. *C. glauca* var. *koenigii* Kurz, *J. Asiatic Soc. Bengal* 45(2): 284 (1876).

Holotype: not seen, name listed by Irwin & Barneby (l.c.) as equivalent to *C. suffruticosa* Roth, but possibly closer to *C. gaudichaudii*, as it was not discussed by De Wit (1955), when dealing with Asian materials.

6. *C. glauca* var. *suffruticosa* (Roth) Baker in Hook. f., *Fl. Brit. India* 2: 265 (1878) (nom. illeg. as var. *koenigii* has priority).

7. *Psilorhegma suffruticosa* (Roth) Britton & Rose, *N. Amer. Fl.* 23(4): 255 (1930).

8. *C. surattensis* subsp. *suffruticosa* (Roth) K. & S. Larsen, *J. Nat. Hist. Soc. Siam* 25 (3-4): 205 (1974).

9. *S. surattensis* var. *suffruticosa* (Roth) Isley, *Mem. New York Bot. Gard.* 25(2): 129, 209 (1975).

Description

Leaflets 6-10 pairs, oblong to obovate, the largest (20-) 25-45 (-50) mm long, apex obtuse, epidermis pubescent or glabrous; *petiole* 30-40 mm long; *petals* 16-24 mm long. Plate 8f.

Distribution and ecology

Probably restricted to closed forests, but natural distributions now wholly obscured by a

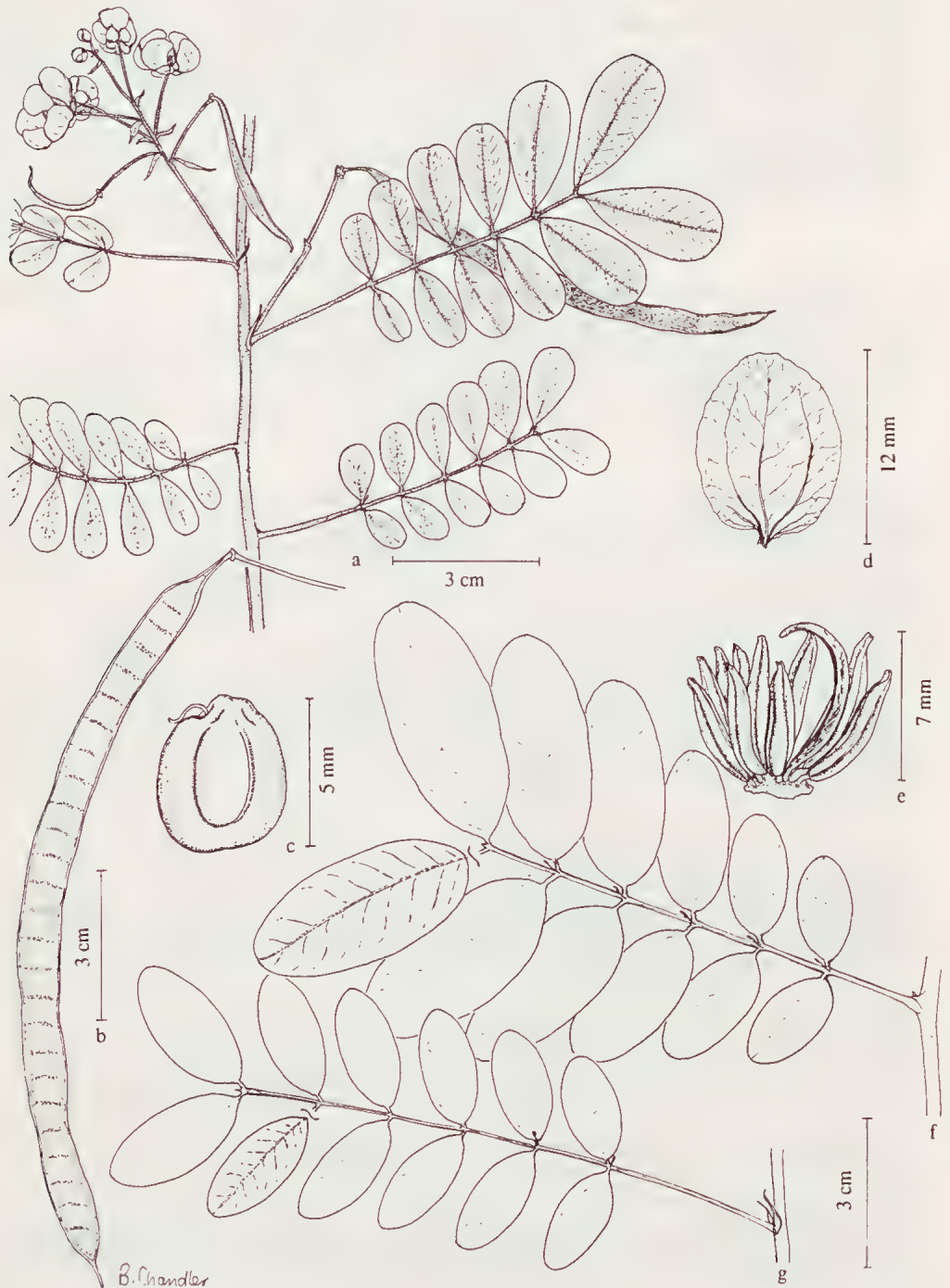


Plate 8. *S. surattensis* subsp.; a-e subsp. *retusa*; a. habit, Gray s.n., July 1976; b. pod, c. seed, both from Johnson s.n. 1891; d. largest petal, e. anthers, both from Gray s.n., July 1976; f. subsp. *sulfurea*, Lullfitz 6102; g. subsp. *surattensis*, Holtz s.n. Queensland. f and g leaves showing abaxial surface of one disconnected leaflet.

long history of cultivation as a drug plant. Previously recorded from tropical Asia, the Phillipine and Malesian Islands, Australia and islands of the Pacific (Roxburgh 1832, Benth 1871, De Wit 1955, Symon 1966, Isley 1974, Irwin & Barneby 1982, Venkata Raju & Pullaiah 1986). In Australia, early collections indicate scattered distributions in closed tropical forests, these now largely cleared. Map 1, p. 199.

Specimens examined

NORTHERN TERRITORY: Morgans Island (as *C. glauca*), *R. Brown* 22, 21.i.1803 (NSW); "Islands in Malay Road" (as *C. graveolens*), *R. Brown s.n.*, 26.ii.1803 (NSW); North Coast Islets, N of Inglis Islands, *R. Brown s.n.*, 26.ii.1803 (MEL); Port Darwin, *Holtze* 113, 1890 (BRI; MEL).

QUEENSLAND: Palmerston, *Holtz s.n.*, s.d., (AD); Roberts Plateau, Lamington National Park, *White* 6036, 28.v.1929 (BRI); Iron Range, Cape York Pen., *Brass* 19233, 17.vi.1948 (BRI; GH); Shire of Murgon, *Phillips s.n.*, 6.iv.1977 (BRI); Pialba, *Forster* 2844, 2.i.1986 (BRI).

1.2 subsp. *sulfurea* (Colladon) Randell, comb. nov.

Basionym: *Cassia sulfurea* DC. ex Colladon, *Hist. nat. med. Casses* 84 (1816).

Holotype: not seen, cited by Irwin & Barneby (1982) thus: "no typus found at G, MPU, or P but the plant in G-DC labelled 'Cassia sulfurea Ile de France ou de Bourbon, Museum de Paris, 1821' is considered authentic."

Synonyms

1. *Cassia glauca* Lam., *Encycl.* 1: 647 (1785); Colladon, *Hist. nat. med. Casses* 102 (1816); Benth., *Trans. Linn. Soc., London* 27: 555 (1871), p.p.; (non *Senna glauca* Roxb., *Fl. ind.* ed 2: 351 (1832), syn. *C. timoriensis* DC.).

Holotype: not seen, cited by Irwin & Barneby (l.c., p. 79) as "P. LAMK".

2. *Cassia arborescens* Vahl, *Symb. bot.* 3: 56 (1794).

Holotype: not seen, cited by Irwin & Barneby (l.c., p. 79) thus: "C (hb. Vahl)" (nom. illeg., non *C. arborescens* Miller, *Gard. Dict. abr.* ed. 8, 1768).

3. *Senna arborescens* (Vahl) Roxb., *Fl. ind.* ed. 2: 345 (1832).

4. *Cassia enneaphylla* Koenig ex R. Wight & Arn., *Prod. Fl. Pen. Ind.* 1: 289 (1834), pro. syn.

Holotype: none stated.

5. *C. suffruticosa* sensu Benth., *Fl. Austral.* 2: 285 (1864), p.p., non Roth.

6. *C. surattensis* sensu De Wit, *Webbia* 11: 269 (1955), p.p.; Symon, *Trans. Roy. Soc. S. Australia* 90: 100 (1966), p.p.; Verdcourt, *Botany Bulletin* 11, P.N.G. (1979), p.p.; non Burman f.

7. *C. surattensis* subsp. *surattensis* sensu K. & S. Larsen, *J. Nat. Hist. Siam. Soc.* 25: 205 (1974), non Burman f.

8. *C. surattensis* var. *surattensis* sensu Isley, *Mem. New York Bot. Gard.* 25: 129, 209 (1975), non Burman f.

9. *Senna sulfurea* (Colladon) Irwin & Barneby, *Mem. New York Bot. Gard.* 35 (1): 79 (1982).

Description

Leaflets 4-6 (-7) pairs, oblong to obovate, the largest 4-7 (-10) cm long, golden pubescent or glabrous; *petiole* 20-40 (-65) mm long; *petals* (10-) 15-30 mm long. Plate 8e.

Distribution and ecology

Natural distribution now obscured and confused by cultivation. Previously recorded from tropical Asia, Malesia, and Australia (Roxburg 1832, Benth 1871, Kurz 1876, De Wit 1955, Symon 1966, Irwin & Barneby 1982). Early collections in Australia indicate distribution in tropical and subtropical forests, now greatly restricted due to clearing activities.

Specimens examined

WESTERN AUSTRALIA: Mitchell Plateau north end, *Beard* 8455, 26.ii.1929 (PERTH); Parry Harbour, *Lullfitz* 6102, 16.vi.1968 (PERTH); Pt Warrender, N. Kimberley, *Beard* 7001, 8.vi.1974 (AD; PERTH); Caravan Creek, Mitchell Plateau, W. Kimberley, *Kenneally* 5192, 21.vi.1976 (NSW); Pt Warrender, *Kenneally* 6681, 18.v.1978 (PERTH); 7819, 20.i.1982 (PERTH).

NORTHERN TERRITORY: Nightcliff, Darwin, along sandy beaches, *Specht* 25, 20.iii.1948 (NSW, PERTH).

QUEENSLAND: Pt Denison, *Fitzalan s.n.*, 1874 (MEL); Mt Dryander, *Kilner & Fitzalan s.n.*, s.d. (MEL); North Australia, *Tenison Woods & Holtze s.n.*, 1886 (MEL); Rosewood, *White s.n.*, -v.1917 (BRI); Helsey Ck, Proserpine, *Michael* 1502, 16.i.1923 (BRI); Gundiah, 24 miles N Gympie, *Kajewski s.n.*, -xii.1923 (BRI); Little Mt Alford, *Michael* 2232, 15.vii.1935 (BRI); Hoya, Fassifern Dist., *Michael* 2214, 28.iv.1935 (BRI); Eungella Nat. Park, *Pearson* 6, -ii.1985 (BRI).

1.3. subsp. *retusa* (J. Vogel) Randell, comb. nov.

Basionym: *Cassia retusa* J. Vogel, *Linnaea* 15: 72 (1841); Benth., *Fl. Austral.* 2: 285 (1864); Benth., *Trans. Linn. Soc. London* 27: 555 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 101 (1966).

Lectotype: Bustard Bay, N.S.W., *Banks & Solander s.n.*, 1770, BM (photo), lectotype here designated; *isolecto*. BRI!. *Syntypes*: Shoalwater Bay, Broad Sound, and Thirsty Sound, R. Brown, not located.

Synonyms

1. *Cassia gaudichaudii* Hook. & Arn., *Bot. Beechey Voy.* 2: 81 (1832).

Holotype: Oahu, *Beechey s.n.*, s.d., K (photo).

2. *Cassia horsfieldii* Miq., *Fl. Ned. Ind.* 1(1): 99 (1855).

Holotype: not located.

Bentham considered this a synonym of *C. glauca* (subsp. *sulfurea* herein), but it was not cited in synonymy by Irwin & Barneby (1982), so presumably they agree with De Wit (1955) in equating it with *C. retusa* J. Vogel which they did not discuss.

3. *Cassia deplanchei* Benth., *Trans. Linn. Soc. London* 27: 555 (1871).

Holotype: New Caledonia, *Deplanche* 342, 1861-67, K (photo).

4. *Cassia retusa* var. *glabrata* Domin, *Biblioth. Bot.* 89: 794 (1926).

Lectotype: Percy Isles, A. Cunningham 168 (cited as 160), 1819, BM (photo), lectotype here designated; *isolecto*.: K (photo).

Syntypes: i) Mungana near Chillagoe, Qld, K. Domin s.n., s.d., not located; ii) Pt Mackay, A. Dietrich 673, s.d., p.p., not located (see also var. *typica*, as the same collection number included types of two varieties).

5. *Cassia retusa* var. *dietrichiae* Domin, *Biblioth. Bot.* 89: 794 (1926).

Holotype: Brisbane River, A. Dietrich 2841, s.d., not located.

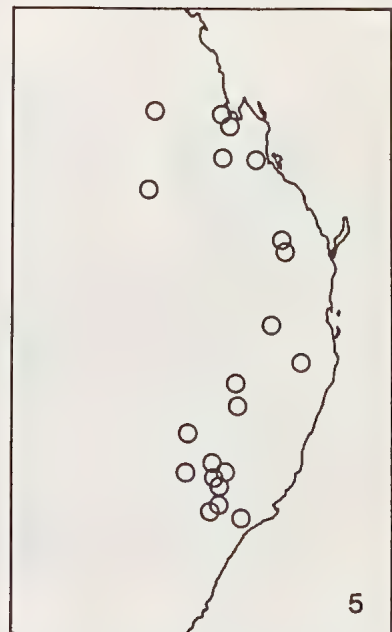
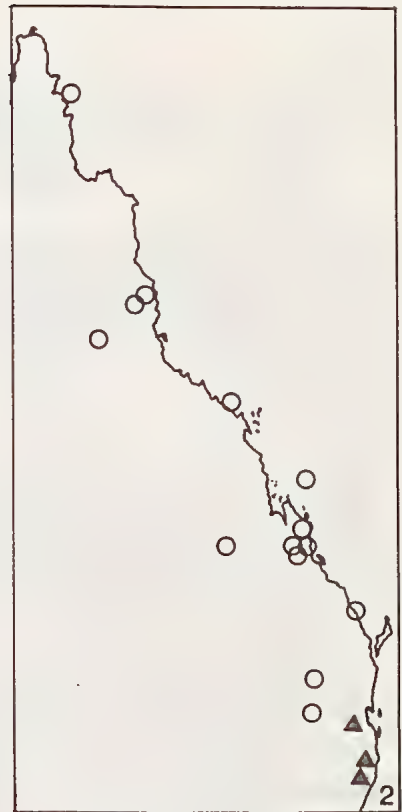
6. *Cassia retusa* var. *typica* Domin, *Biblioth. Bot.* 89: 794 (1926).

Lectotype: Rockhampton, A. Dietrich 910, s.d., NSW !, lectotype here designated.

Syntypes: Rockhampton, A. Dietrich 672, s.d., NSW !; Port Mackay, A. Dietrich 673 p.p., s.d., not located (see also var. *glabrata* as the same collection number included types of two varieties).

7. *Psilorhegma gaudichaudii* (Hook. & Arn.) Degener, *New Illustr. Fl. Hawaiian Islands*, Fam. 169b (1932).

8. *Senna gaudichaudii* (Hook. & Arn.) Irwin & Barneby, *Mem. New York Bot. Gard.* 35: 80 (1982).



Map 1. *S. surattensis* subsp. *surattensis*. Map 2. ○ *S. surattensis* subsp. *retusa*; ▲ *S. acclinis*. Map 3. *S. odorata*. Map 4. *S. aciphylla*. Map 5. *S. coronilloides*.

Description

Leaflets (2-) 3-5 (-6) pairs, oblong, oval or obovate, largest 20-50 (-60) mm long, apex obtuse to emarginate, epidermis golden pubescent or glabrescent; *petiole* 10-30 mm long; *petals* 10-15 mm long. Plate 8a-d.

Distribution and ecology

Apparently not cultivated, so the distribution currently seen may approach that natural for the taxon. Previously recorded from Asia, Malesia, Australia, and the Pacific islands, (Hooker & Arnott 1832, Miquel 1855, Bentham 1871, Hillebrand 1888, De Wit 1955, Symon 1966). Australian collections indicate distribution in tropical and subtropical closed forests of the East coast. Map 2, p. 199.

Specimens examined

QUEENSLAND: Don R. near Edgecombe Bay, *Weld Birch s.n.*, 1886 (AD, MEL); Stuart R., *Johnson s.n.*, 1891 (AD, MEL); Bouldercombe, *Smith s.n.*, -x.1906 (BRI, NSW); Bundaberg, *Boorman s.n.*, -vii.1912 (NSW); Rockhampton, *Boorman s.n.*, -viii.1912 (NSW); Pine Inlet Percy Island, *Lazarides 5680*, 2.ii.1956 (CANB, NSW); 46 miles NNE Capella, *Story & Yapp 60*, 22.vi.1962 (NSW); 62 miles NW Rockhampton, *Lazarides 6873*, 29.vi.1963 (NSW); 25 miles N Dalby, *Telford s.n.*, -v.1967 (NSW); 6 miles E Mt Surprise, *Symon 4899*, 26.v.1967 (AD, BRI, CANB); 40 mile scrub, Atherton, *Hyland 5871*, 1.ii.1972 (AD); 8 miles S of Lockhart R., Iron Ra., *Jones & Gray s.n.*, 20.ix.1976 (AD); near Tinneroo Falls Dam, Atherton Tableland, *Gray s.n.*, -vii.1976 (AD).

2. *S. acclinis* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia acclinis* F. Muell., *Phragm.* 4: 13 (1863).

Lectotype: Ipswich, *J. Nernst s.n.*, s.d., MEL! lectotype here designated.

Syntypes: a) Hastings R., *Dr Beckler s.n.*, s.d., K (photo); b) Fitzroy R., *A. Thozet s.n.*, s.d., cited by Symon as MEL? and P, not located; c) Edgecombe Bay, *E. Fitzalan s.n.*, s.d., MEL! (photo), K (photo), P.

Synonyms

1. *Cassia glauca* sensu Benth., *Trans. Linn. Soc. London* 27: 555 (1871), p.p., as for *C. acclinis* F. Muell., non Lam.

2. *Cassia retusa* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 101 (1966), p.p., as for *C. acclinis* F. Muell., non J. Vogel.

Description

Shrubs to 3 m; *leaves* to 15 cm long, spreading; *leaflets* 5-7 pairs, elliptic, the largest to 5 cm long and to 15 mm broad, 10-20 mm apart on the rachis, increasing in size from the base of the rachis, apex obtuse and without a mucro, glabrous and glaucous, bicolorous; *glands* 1 (-2) between lowest pairs of leaflets, stipitate, to 3 mm long; *stipules* acicular, caducous or persistent; *petioles* 2-4 cm long, terete; *inflorescences* in the axils of the terminal leaves, racemose but subumbellate due to the contraction of the rachis; *peduncle* 2-4 cm long, bearing 2-5 flowers; bracts sometimes persistent at anthesis; *pedicels* 10 mm long, solitary; *sepals* subequal 2-4 mm long, brown; *petals* subequal, 12-15 mm long, glabrous; *anthers* 10, all fertile; *filaments* subequal, 1 mm long or slightly longer; *ovary* usually glabrous; *fruiting pedicel* 10-15 mm; *pod* 12-15 cm x 6-8 mm, dark, curved, oval in section due to the plump seeds; *seeds* with broad oval areole. Plate 9 f-k.

Distribution and ecology

Apparently restricted to rainforest margins in northern New South Wales, and southern Queensland. Map 2, p. 199.



Plate 9. a-e *S. coronilloides*; a. habit, *Beaglehole* 3608; b. pod, c. seed, both from *Adams* 1020; d. largest petal *Hando* s.n.; e. anthers *Atkins* 1; f-k *S. acclinis*, f. habit *Bäuerlen* s.n., Oct, 1891; g. pod, h. seed, both from *Bäuerlen* s.n., May 1895; j. petal, k. anthers, both from *Bäuerlen* s.n., Oct. 1891.

Notes

An apparently rare species, certainly rarely collected. An unsuccessful attempt has been made to relocate material at Mt Warning. It seems likely that the continued survival of the taxon depends on the maintenance of large stands of rainforest in the area.

Specimens examined

QUEENSLAND: Cleveland Bay, *Johnson s.n.*, 1877 (MEL); Brookfield, *Field Naturalists Assoc. s.n.*, -xii.1888 (BRI); near Brisbane, *Bailey 16*, s.d. (NSW); Yarraman to Nanango, *White s.n.*, 16.v.1924 (BRI); Gladstone, *Hedley s.n.*, s.d. (BRI).

NEW SOUTH WALES: Lismore, *Bäuerlen 509*, -x.1891 (NSW); Chincoggin Mt, Mullumbimby, *Bäuerlen s.n.*, -v.1895 (PERTH, 2 sheets); Bungwahl Road, Bulladelah, *Rupp s.n.*, -v.1924 (MEL); Mt Warning, W of Murwillumbah, Beamish 100, 4.ix.1971 (NSW).

3. *S. odorata* (Morris) Randell, comb. nov.

Basionym: *Cassia odorata* Morris, *Fl. conspic. t.* 57 (1826); Symon, *Trans. Roy. Soc. S. Australia* 90: 102 (1966).

Lectotype: The cited plate (photo), lectotype here designated, as no holotype located.

Synonyms

1. *Cassia australis* Sims, *Curtis's Bot. Mag.* t. 2676 (1826); J. Vogel, *Gen. Cass. syn.* 48 (1837); Benth., *Fl. Austral.* 2: 285 (1864); Benth., *Trans. Linn. Soc. London* 27: 555 (1871), non *S. australis* (Vellozo) Irwin & Barneby l.c., see Wiersema, *Taxon* 38: 652 (1989).

Lectotype: The cited plate (photo), lectotype here designated, as no holotype located.

2. *Cassia barrenfieldii* Colla, *Hortus Ripul. App.* 2: 343 (1827); J. Vogel, *Gen. Cass. syn.* 48 (1837).

Holotype: fide Symon (1966) "TO, grown from seed from New Holland" not seen, but there is in Kew a sheet transferred from Turin and labelled "*Cassia barrenfieldii* Colla ex. H. Ripl. 1828" which is presumably a syntype. In the absence of other material, it should be treated as the lectotype (photo). (*C. fieldii* cited by Bentham 285: 1864 was a nomen nudum).

3. *Cassia schultesii* Colla, *Hortus Ripul. App.* 2: 344 (1827); J. Vogel, *Gen. Cass. syn.* 48 (1837).

Holotype: fide Symon (1966) "TO, grown from seed from New Holland", not seen, but there is in Kew a sheet transferred from Turin and labelled "*Cassia schultesii* Colla ex H.S. Seb & Spin. 1828", which is presumably a syntype. In the absence of other material, it should be treated as the lectotype (photo).

4. *Cassia umbellata* Reichb., *Iconogr. bot. exot.* t. 206 (1830).

Lectotype: The cited plate (photo), lectotype here designated, as no holotype known. The material was grown in the Botanic Garden Dresden, from seed from New Holland.

(N.B. Though the name on the plate is *Cassia umbellata*, in the text the plant is treated as *Cassia australis* Sims.)

5. *C. fraseri* A. Cunn. ex J. Vogel, *Gen. Cass. syn.* 48 (1837), nomen nudum, cited as synonym of *Cassia australis* Sims.

6. *C. australis* var. *pedunculata* Benth., *Fl. Austral.* 2: 286 (1864).

Lectotype: St. George's River, *R. Brown 4259*, s.d., BM (photo), lectotype here designated.

Syntype: Blue Mountains, N.S.W., *A. Cunningham s.n.*, s.d., not located, cited by Symon (1966) as K.

7. *Cassia riedellii* Benth. in *Martius, Fl. Bras.* 15: 122 (1870).

Holotype: Riedel 651, LE, fide Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 59 (1982).



Plate 10. a-d *S. odorata*; a. habit, b. pod, c. largest petal, d. anthers, all from *Blaxell 45*; e-j *S. aciphylla*; e. habit, f. pod, g. smallest petal, h. largest petal, j. anthers, all from material cult. Adelaide Botanic Garden *Randell 345*.

Beth Chandler

Description

Shrub 1-3 m tall. *Leaves* 8-15 cm long, spreading in dim light, ascending in full sun; *leaflets* 8-13 pairs, lanceolate to elliptic, 5-8 mm apart on the rachis (this often with slight lateral wings), the longest 10-30 mm, the broadest 5-10 mm, increasing in size from the base of the rachis but sometimes the subterminal ones the longest, rarely the edges slightly recurved, the apex acute to obtuse, mucronate, apparently glabrous but with a few sparse hairs below; *glands* between all leaflet pairs, stipitate, pointed, to 3 mm long; *stipules* acicular, early caducous; *petiole* 6-14 mm long, terete or winged; *inflorescences* in the axils of terminal leaves, racemose but appearing subumbellate due to the contraction of the rachis; *peduncle* 3-9 cm long, with 3-5 flowers; *bracts* caducous at anthesis; *pedicels* solitary 10-20 mm long; *sepals* subequal, 4-6 mm long, brown with pale margins; *petals* subequal, the longest 12-20 mm long, glabrous; *anthers* 10, all fertile, 4 mm long or slightly longer; *filaments* about 1 mm long, subequal or 1-3 slightly longer; *ovary* glabrous or slightly hairy; *fruiting pedicel* 15-20 mm long; *pod* 8-12 cm x 5-6 mm, oval in section due to the plump seeds; *seeds* oval, 3 x 4 mm, with narrow linear areole. Plate 10 a-d.

Distribution and ecology

Occurs in wet sclerophyll or subtropical rainforest areas of New South Wales. Map 3, p. 199.

Notes

Bentham (1864) recognised the variety '*pedunculata*' for plants with peduncles much longer than the leaves. Examination of many specimens has shown that the character varies within one population [Liverpool Cemetery, *McBarron* 11473, 29.x.1965, (NSW), and *McBarron* 13205, 3.x.1966, (NSW)]; is not expressed consistently on one plant [Nepean River, *Constable* 6216, 12.x.1965, (NSW), where one plant has peduncles 5-9 cm long]; and shows no recognisable pattern of geographic distribution. The character is thus not taxonomically useful.

Selection of specimens examined (c. 50 seen)

NEW SOUTH WALES: Nepean R., *Cunningham* s.n., -x.1825 (NSW); NW Bowral, *Rodway* 2197, 3.xi.1935 (K, NSW); Tanja near Bega, *Floyd* s.n., 30.x.1951 (NSW); Nowendoc R., *Johnson* s.n., 17.x.1953 (NSW); Nepean R., 6 miles E Picton, *Constable* 6216, 12.x.1965 (NSW); 3.5 miles ENE Gloucester Tops, *Briggs* 2449, 2.xi.1968 (NSW); Bells Trail, 6 km NW Copeland, *Randell* 284, 16.xii.1985 (AD); 4 km W Barnard R. bridge between Gloucester and Nowendoc, *Randell* 291, 17.xii.1985 (AD).

4. *S. aciphylla* (Benth.) Randell, comb. nov.

Basionym: *Cassia aciphylla* Benth. in A. Gray, *U.S. Exploring Expedition during years 1838-1842*, 15: 465 (1854); Benth., *Trans. Linn. Soc. London* 27: 556 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 104 (1966).

Holotype: Hunter River, A. *Cunningham* s.n., s.d., K (photo). Note that the type sheet carries another specimen from Glen Findlay, which is not part of the type collection.

Synonyms

1. *Cassia revoluta* F. Muell., *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1854-1855: 120 (1855).

Lectotype: Along the Avon River in Victoria, *Mueller* s.n., s.d., K, upper left specimen of three on sheet (photo), lectotype here designated; *isolectotypes* MEL! (2 sheets, both photos), BM, E, TCD.

2. *Cassia australis* var. *revoluta* (F. Muell.) Benth., *Fl. Austral.* 2: 286 (1864).

Description

Shrub 1-3 m tall, spreading or erect, pubescent or glabrous; *leaves* 3-5 cm long, ascending; *leaflets* (5-) 8-12 pairs, linear, 1-5 mm apart on rachis, the longest 20-25 (-45) mm x 1-4 mm, increasing in size from the base of the rachis, apex acuminate, mucronate, often almost pungent, edges usually obviously revolute, (but this character less developed at latitudes higher than 30°S, often pubescent, especially north of 30°S; *glands* stipitate, to 3 mm long, between all leaflet pairs; *stipules* acicular, caducous or persistent; *petioles* 2-5 (-8) mm, terete, rarely with lateral wings; *inflorescence* in the axil of terminal leaf, racemose but subumbellate by contraction of the rachis, peduncles 20-50 mm long, bearing 2-3 flowers; *pedicels* 10-15 mm long, solitary; *bracts* sometimes persistent after anthesis; *sepals* obovate, 5 mm long; *petals* 10-15 mm long, glabrous; *anthers* 10, all fertile, subequal, 4 mm or one slightly longer; *filaments* subequal, 1 mm long or slightly longer; *ovary* white pubescent to sparsely hairy; *fruiting* pedicel 10-15 mm long; *pod* pubescent or not, 6-8 cm x 5-6 mm, oval in section from the plump enclosed seeds; *seeds* oval, with a narrow linear areole. n=13, but voucher not retained (Symon 1966). Plate 10 e-j.

Distribution and ecology

Shrub of wet or dry sclerophyll forests of southeastern Queensland and eastern New South Wales and Victoria. Map 4, p. 199.

Selection of specimens examined (c. 70 seen)

QUEENSLAND: Texas, *Boorman s.n.*, -ix.1910 (NSW); 18 miles SW Theodore, *Everist 8072*, 28.ix.1968 (NSW); 5.5 km E Kogan, *Randell 279*, 6.ix.1985 (AD).

NEW SOUTH WALES: Tamworth, *Rupp s.n.*, -xi.1904 (NSW); Scone, *Cabbage 1644*, 31.viii.1907 (NSW); 15 miles ENE Capertee, *Constable 7214*, 28.x.1966 (NSW, PERTH); Glen Davis, *Coveny 9277*, 24.iv.1977 (A, K, L, MO, NSW, PRE, RSA); 5.5 km SSW of Manobalai, *Coveny 9600*, 26.ix.1977 (A, K, L, MO, NSW, PRE, RSA).

VICTORIA: East Gippsland, *Prescott s.n.*, 1900 (NSW); East Gippsland, Suggan Buggan, *Willis s.n.*, 16.i.1948 (MEL, NSW); Tubbut to Deddick, *Gray 5614*, 30.x.1964 (NSW).

5. *S. coronilloides* (Benth.) Randell, comb. nov.

Basionym: *Cassia coronilloides* Benth. in Mitchell, *Journal of an Expedition into the Interior of Tropical Australia* 384 (1848).

Lectotype: St George's Bridge Camp on the Balonne River, Qld, *T.L. Mitchell 426*, 11.xi.1846, CGE (photo), lectotype here designated; *isolecto*: BM, K (photo), TCD.

[*Note*, the second twig on the lectotype sheet, *Mitchell 235*, 1846, is *Senna costata* (J.F. Bailey & C.White) Randell.]

Description

Shrub 1-3 m tall, erect and straggling; *leaves* 5-9 cm long, spreading; *leaflets* 9-12 pairs, elliptic, the longest 10-20 mm long, the broadest 3-8 mm wide, all even sized, apex obtuse and mucronate, edges not recurved, glabrous or sparsely hairy, not glaucous; *glands* 1 rarely 2 between lowest pairs of leaflets, stipitate, to 3 mm long; *stipules* acicular, caducous or persistent; *petioles* 5-10 mm long, terete or slightly winged; *inflorescence* in the axils of terminal leaves, racemose but sub-umbellate by the contraction of the rachis, peduncles 10-20 (-30) mm long, bearing 3-5 flowers; *pedicels* 10 mm long, solitary; *bracts* caducous before anthesis; *sepals* subequal, 5 mm long, golden-brown with a paler margin; *petals* subequal, 10-13 mm long, glabrous; *anthers* 10, all fertile, subequal, 4 mm long or slightly longer; *filaments* subequal, 1 mm long, or one slightly longer; *ovary* glabrous or sparsely hairy; *fruiting* pedicel 10 mm

long; *pod* glabrous, 6-8 cm x 4-6 (-8) mm, oval in section due to the plump seeds; *seeds* oval, 4 x 3 mm, areole linear. Plate 9 a-e.

Distribution and ecology

Occurs in dry sclerophyll areas, often under *Acacia harpophylla* in south-eastern Queensland and eastern New South Wales. Map 5, p. 199.

Notes

Previous treatments have considered the possibility of uniting the last three species (*S. odorata*, *aciphylla* and *coronilloides*) as parts of a single species, usually *C. australis* Sims, however, *S. australis* is superfluous (see under synonymy of *S. odorata*). Discussed below are reasons why this approach has not been adopted here.

(i) All three taxa have been examined in living populations, and none shows any evidence of abnormal behaviour such as hybridization or vegetative reproduction.

(ii) It is possible to define three taxa using the macromorphological characters suggested in the key. Some variations are still obvious, but these are within taxa and do not obscure the boundaries between them.

(iii) The taxon 'aciphylla' is defined by long peduncles (cf. short in *coronilloides*) and short petioles (cf. longer in *odorata*). Many specimens have flat obtuse leaflets, so that the specific epithet is unfortunately not always apposite. Previous revisions have put too much emphasis on the supposed revolute and acicular characteristics of the leaflets.

Selection of specimens examined (c. 30 seen)

QUEENSLAND: Broad Sound, *R. Brown* 59, 15.ix.1802 (NSW); Eidsvold, *Bancroft s.n.*, -x.1919 (NSW); 43 miles SSW Nebo township, *Story & Yapp* 71, 23.vi.1962 (PERTH); 8 miles W of Avon Downs Stn, *Adams* 1053, 13.vii.1964 (CANB, NSW); Salvator Rosa National Park, *Blaxell* 1497 & *Armstrong*, 31.viii.1977 (NSW); Rifle Range Reserve, Chinchilla, *Randell* 280, 6.ix.1985 (AD).

NEW SOUTH WALES: Narribri, *Maiden s.n.*, -xi.1899 (NSW); Warialda, *Rodway* 2195, -x.1916 (NSW); 10 miles from Scone, *White s.n.*, -x.1920 (NSW); Mt Terrible, Werris Ck, *Rodd* 3334, 8.iii.1978 (NSW).

6. *S. costata* (J.F. Bailey & C. White) Randell, comb. nov.

Basionym: *Cassia costata* J.F. Bailey & C. White, *Queensland Agric. Jour.* 4: 287 (1915); Symon, *Trans. Roy. Soc. S. Australia* 90: 104 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970); Symon in Jessop, *Fl. Central Australia* 108 (1981).

Lectotype: 'Woolgar Queensland', *E.W. Bick s.n.*, -viii.1915 BRI!, sheet with handwritten label, BRI negative 9224, lectotype here designated, (photo); *isotypes*: BRI! (photo), K (photo).

Synonym

C. australis var. *glaucescens*, Benth. *Fl. Austral.* 2: 286 (1864).

Holotype: Hooker's Creek, Northern Territory, *F. Mueller s.n.*, s.d., K (photo).

Description

Shrub or small tree, 1-2 m high. *Leaves* 4-6 cm long, including petiole; *leaflets* 4-5 rarely 6 pairs, elliptic, 20-40 mm x 3-8 mm, almost even sized, indumentum of stiff and erect hairs, dense, sparse or almost absent, cuticular wax not obvious; *glands* 1-3 between leaflet pairs, stalked, elongate and pointed; *stipules* acicular, caducous; *petioles* terete or winged, to 20 mm



Plate 11. *S. costata*; a. habit, b. anthers, c and d. smallest and largest petals, all from Scrymgeour s.n., 25.v.1967.



Map 6. *S. costata*.

long; *inflorescence* a subumbellate raceme in the axils of leaves near the end of branches, 5-8 flowered; *bracts* usually caducous at anthesis; sepals 4-5 mm long, subequal; *petals* 7-10 mm long, glabrous; *anthers* 10, all fertile, subequal, 3 mm long; *filaments* subequal, 1 mm long, 3 sometimes longer to 3 mm long; *ovary* 4 mm long, densely hairy; *pod* flat, 7-8 cm long, 8-10 mm broad, straight or usually strongly curved $\frac{1}{2}$ to $\frac{3}{4}$ circle, with seed funicles attached to long outer edge, yellow when fresh to rich brown on drying; *seeds* to 5 mm long, to 20 per pod, frequently hanging from open pods by the funicles. n=14 (Randell 1970). Plate 11a-d.

Distribution and ecology

Scattered among grasses under *Acacia* and *Eucalyptus* species across northern Western Australia, Northern Territory and Queensland. Map 6, p. 207.

Notes

Despite its wide geographical distribution, the species is apparently rare and not frequently collected. Its relationship with east coast species is shown by the glossy seeds and the position of funicle attachment.

Selection of specimens examined (c. 25 seen)

WESTERN AUSTRALIA: between De Grey R. and Legrange Bay, *Forrest s.n.*, 1879 (MEL); 22 miles E Broome, *Gardner 7044*, 5.v.1944 (PERTH); 20 miles S Derby, *Barlow 1224*, 24.vi.1967 (AD); 74 km SSW Derby at Mangel Ck, *Beaglehole 53033*, 16.vi.1976 (AD); Cape Bertholet South, Dampier Peninsula, *Kenneally 6120*, 22.iv.1977 (CANB, PERTH); 67 km NE Legrange Aboriginal Mission turnoff, *Beaglehole 59194*, 1.ix.1978 (PERTH); 86 km NE Sandfire Roadhouse, *Beaglehole 59307*, 2.ix.1978 (PERTH); 5 km SSE Chatur Bay, Dampier Peninsular, *Maslin 4939*, 23.vi.1981 (AD).

NORTHERN TERRITORY: near Newcastle Waters, *Hill 455*, 7.vii.1911 (MEL); Eley Falls, E of Mataranka, *Burbidge 5067*, 8.iv.1956 (AD, CANB); 10 miles N Elliot, Stuart Highway, *Latz 97*, 7.vii.1968 (MEL); 31.5 km NW Granites, *Beaglehole s.n.*, 20.vi.1976 (AD); Tanami Desert, *Beaglehole 50938*, 20.v.1976 (AD).

QUEENSLAND: Barcaldine, *MacGillivray s.n.*, -viii.1928 (AD); Jerico and vicinity Central Queensland, *Clemens s.n.*, 1946 (AD).

b. ser. *Subverrucosae*

b. *Senna* Miller [sect. *Psilorhegma* (J. Vogel) Irwin and Barneby] ser. *Subverrucosae* (Benth.) Randell, comb. nov.

Basionym: *Cassia* L. [subg. *Senna* (Miller) Benth.] ser. *Subverrucosae* Benth., *Trans. Linn. Soc. London* 27: 555 (1871).

Lectotype species: *C. glutinosa* DC. syn. *S. glutinosa* (DC.) Randell subsp. *glutinosa*, lectotype here designated.

Description

Shrubs or small trees; *leaves* 1-10 cm long; *leaflets* 0-14 pairs, variable in shape, size and indumentum, usually sclerophyllous; *glands* 1-many, sessile or stipitate; *petals* obovate 4-14 mm long, glabrous or pubescent dorsally; *Pods* 3-10 cm x 5-20 mm, without ridges on the inner surface; *seeds* dull black.

Distribution and ecology

Plants found in wide range of habitats from rocky hillsides to deep desert sands, in inland areas of Australia.

Notes

The series as recognised here does not include *C. oligoclada* nor *C. leptoclada*, both listed by Benth (1871). This author included one species, *C. leptoclada*, in both his series *Interglandulosae* and *Subverrucosae*, probably in error.

Key to the species of ser. *Subverrucosae*

1. Petals 11-15 mm long, pubescent dorsally 7. *S. glutinosa*
1. Petals 4-8 mm long, glabrous dorsally:
 2. Petals 4-8 mm long; petioles 1-4 (-8) mm long; leaflets 1-5 mm apart on the rachis 9. *S. cardiosperma*
 2. Petals 7-10 mm long; petioles 5-15 (-60) mm long; leaflets 5-15 mm apart on the rachis 8. *S. artemisioides*

7. *S. glutinosa* (DC.) Randell, comb. nov.

Basionym: *Cassia glutinosa* DC., Prodr. 495 (1825); Benth., *Fl. Austral.* 2: 286 (1864); Benth., *Trans. Linn. Soc. London* 27: 556 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 127 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970); Erikson et al., *Fl. & Pl. Western Australia* 206, 209 (1979); Symon in Jessop, *Fl. Central Australia* 113 (1981).

Holotype: In Novae-Hollandiae ora orientali, (probably in error (Symon 1966) for 'ora occidentalis' which matches the true distribution) probably collected by Leschenault on Baudin's voyage. There is in P, a specimen annotated 'Nouvelle Hollande Cote Occidentale, Port Jackson, Voyage aux Terres Australes Capitaine Baudin 1801', which is probably the holotype. P (photo).

The basionym and holotype apply to the species and the type subspecies. All synonyms are listed under the subspecies to which they apply.

Description

Medium shrub to small tree, 1.5-3 m tall; *leaflets* 1-7 pairs, spaced more than 6 mm apart, variable in form and surface wax; *indumentum* usually almost absent; *petiole* more than 6 mm long; *glands* sessile or stalked, flat cylindrical or pointed; *inflorescence* a subumbellate raceme near the end of branches; *bracts* usually caducous at anthesis; *sepals* oval, 8-10 mm long, greenish yellow; *petals* oval, 11-15 mm long, yellow, pubescent on abaxial surface; *anthers* 10, all fertile, 4-5 mm long; *filaments* subequal, 7 adaxial 2 mm, 3 abaxial 3 mm long; *ovary* 5-7 mm, glabrous or pubescent; *pod* 5-7 cm x 10-20 mm, straight, glabrous; *seed* oval, dark, 6 mm long. Plates 12, 13.

Distribution and ecology

This species is widespread in central and northern arid areas of Australia.

Notes

This species differs from other species in the group in the distinctly larger petals which are frequently sparsely hairy on the outside, especially when immature. The individual subspecies of *S. glutinosa* are more widespread than those of *S. cardiosperma*, but hybridization is not as frequent as between subspecies of *S. artemisioides*. Thus it may be assumed that *S. glutinosa* is intermediate between the other species in success in the Ereman conditions.



Plate 12. a-f. *S. glutinosa* subsp. *glutinosa*; a. habit, b. leaf detail, c. leaflet abaxial surface, d. leaflet adaxial surface, e. pod, all from *George 14458*; f. largest petal abaxial surface, from *Carr 4695*; g-h. *S. glutinosa* subsp. *charlesiana*; g. anther group, h. adaxial immature petal showing pubescence, both from fresh material cultivated in Adelaide Botanic Garden *Randell 346*.

Key to the subspecies of *S. glutinosa*

1. Petioles >45 mm long 5. subsp. *charlesiana*
1. Petioles <45 mm long:
 2. Petioles robust 2 mm in diameter; midrib prominent below; leaflets 20-40 x 10-15 mm .. 6. subsp. *ferraria*
 2. Petioles slender 1 mm diameter; midribs obscure below:
 3. Epidermis of leaflets, petioles, peduncles, pods etc. viscid; and leaflets elliptic, 4-6 pairs; and glands sessile; and leaflets not glaucous 1. subsp. *glutinosa*
 3. Character combination not as above:
 4. Leaflets 4-6 pairs, linear to elliptic; and stipules acicular somewhat persistent; and glands stalked and pointed; and epidermis neither viscid nor pruinose ... 2. subsp. *chatelainiana*
 4. Character combination not as above:
 5. Leaflets 3-5 pairs, broad elliptic; and stipules falcate persistent; and glands sessile and flat; and epidermis pruinose 4. subsp. *pruinosa*
 5. Variable, but usually with leaflets 4-6 pairs, narrow elliptic; stipules acicular to subfalcate, caducous or persistent; glands sessile or stalked; epidermis glutinous or subpruinose or unmodified 3. subsp. \times *luerssenii*

7.1 subsp. *glutinosa*

Basionym and holotype: as for the species.

Synonym

C. glutinosa DC. var β , J. Vogel, *Gen. Cass. syn.* 47 (1837).

Holotype: "in Nova Holl. et in Ins. Admiralitatis", P (photo).

Description

Leaflets 4-6 pairs, elliptic, 10-25 mm x 3-6 mm; *epidermis* completely glabrous; *cuticular wax* a thick viscid secretion on leaflets, petioles, peduncles, young stems and pods; *petioles* to 15 mm long; *stipules* acicular, usually soon deciduous; *glands* sessile and flat. Triploid $n=42/2$, tetraploid $n=28$, few records of both (Randell 1970). Plate 12a-f.

Distribution and ecology

Scattered occurrence in arid shrublands of inland Western Australia, Northern Territory and South Australia. Map 7, p. 212.

Notes

There is some variation in the degree of development of the viscid secretion in different specimens, and this may be a reflection of the season in which the specimen was collected. In addition, there is some variation in the width of leaflets.

Some hybridization has been observed, linking subsp. *glutinosa*, *pruinosa*, *chatelainiana* and \times *luerssenii*, but subsp. *glutinosa* is less frequently involved than are other subspecies. The parental role of subsp. *glutinosa* is usually deduced from the occurrence of viscid epidermis in some of the intermediates. Most of these intermediates are collected under subsp. \times *luerssenii*, so that viscid epidermis is not solely diagnostic of subsp. *glutinosa*. Vegetatively subsp. *glutinosa* strongly resembles *S. artemisioides* subsp. *glaucifolia* from which it may be separated by the glabrous, viscid epidermis (which is never glaucous), and the larger flowers of subsp. *glutinosa*.

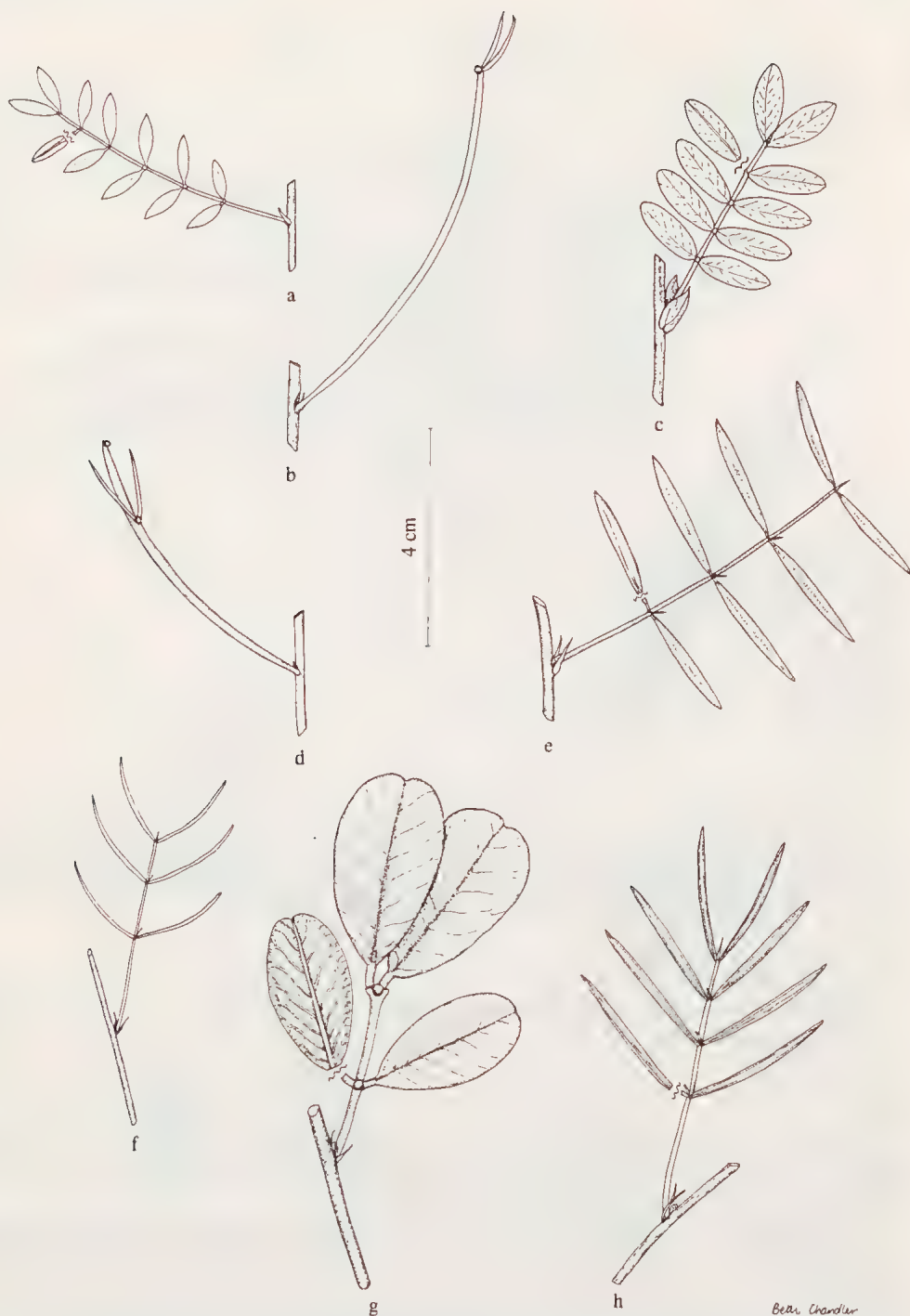


Plate 13. *S. glutinosa* subspecies. Leaf structure. a. subsp. \times *luerssenii*, George 5570; b. subsp. *charlesiana*, Lullfitz L2013; c. subsp. *pruinosa*, Carr 4662; d. form *falcata*, Cummings 1216; e. subsp. *chatelainiana*, Aplin 3179; f. form *acifolia*, Symon s.n., -viii.1961; g. subsp. *ferraria*, Walker 135; h. form *aplinii*, Aplin 2406 (a, c, e, g, h all with one leaflet reversed).

Selection of specimens examined (c. 60 seen)

WESTERN AUSTRALIA: Blackstone Mining Camp, c. 630 km SW Alice Springs, *Hill & Lothian* 920, 11.vii.1958 (AD, K, PERTH); 18 miles E Margaret R. Station, Kimberleys, *Lazarides* 6323, 13.vii.1959 (AD, CANB); Pass of the Abencerrages, Rawlinson Ra., *Symon* 2486, 4.viii.1962 (AD); 4 miles W Margaret R. turnoff, SW Halls Creek, *Barlow* 1211, 21.vi.1967 (AD); rim, Wolf Ck Meteorite Crater, *Crisp* 385, 20.vii.1975 (AD); Little Sandy Desert, *Mitchell* 605, 23.iv.1979 (AD, DNA, PERTH); Anketell Ridge, *Mitchell* 1142, 14.v.1979 (AD, DNA, PERTH); Radio Hill Paraburdoo, *Boomsma* 652, 10.vii.1980 (AD).

NORTHERN TERRITORY: Macdonald Station, c. 170 km NE Alice Springs, *Ising* 3167, 2.ix.1933 (AD); 40 miles NW Cockatoo Ck, *Cleland s.n.*, 22.viii.1936 (AD); 14 miles N Inverway Stn, *Perry* 2347, 4.vii.1949 (AD, CANB); Palm Valley area, c. 110 km SW Alice Springs, *Caulfield & Hill s.n.*, -vii.1953 (AD); Woodgreen Station c. 125 km N Alice Springs, *Lothian* 512, 1954 (AD, DNA, K); 36 miles N Wauchope township, *Lazarides* 5848, 26.viii.1956 (AD, CANB); between Three Ways and Frewena, *Lovett* 78, 10.viii.1969 (AD).

SOUTH AUSTRALIA: nickel mine near Mt Davies, NW Aboriginal Reserve, *Pastoral Board s.n.*, 24.ix.1955 (AD); Dulgunia Hill, Tomkinson Ra., *Weber* 5395, 4.ix.1978 (AD, MO).

7.2 subsp. *chatelainiana* (Gaudich.) Randell, comb. nov.

Basionym: *Cassia chatelainiana* Gaudich. in Freycinet, *Botanique du voyage autour du monde*: 485, t. 3 (1826); Benth., *Fl. Austral.* 2: 286 (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Blackall & Grieve, *How to Know Western Austral. Wildfl.* 1: 183 (1954); Symon, *Trans. Roy. Soc. S. Australia* 90: 127 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn. 2*: 62 (1970); Gardner, *West Austr. Wildf. Vol. A*, 52t (1972); Symon in Jessop, *Fl. Central Australia* 112 (1981).

Holotype: In Novae-Hollandiae ora occidentali baie des Chiens — Marins [Shark's Bay, Western Australia]. P (photo).

Description

Leaflets 4-6 pairs, elliptic, 10-20 mm x 2-4 mm; *indumentum* almost absent, of soft appressed hairs; *cuticular wax* not obviously present; *petiole* terete to 15 mm long; *stipules* acicular somewhat persistent; *glands* 1-4, stalked pointed. Diploid $n=14$, near Carnarvon, Western Australia (Randell 1970). Plate 13e.

Distribution and ecology

Scattered in arid shrubland of north-west of Western Australia. Map 8, p. 212.

Notes

Considerable variation is known. The number of glands may vary even on leaves of the same plant. Leaflets show considerable variation in length/breadth ratio from about 10 (for long thin leaflets) to about 5 (for broad short leaflets).

Hybridization is relatively frequent between subsp. *chatelainiana* and subsp. *pruinosa*, with relatively frequent collections of intermediates (classed as subsp. \times *luerssenii*). An arbitrary separation of the three subspecies has been made on the basis of leaflet characters, as below.

1. Having at least 3 of the following characters:
glands stalked; stipules acicular deciduous; epidermis not pruinose; leaflets narrow elliptic . . . subsp. *chatelainiana*
2. Having at least 3 of the following characters:
glands sessile; stipules falcate persistent; epidermis pruinose; leaflets broad elliptic subsp. *pruinosa*
3. Having any other combination of these characters subsp. \times *luerssenii*

Vegetatively *S. glutinosa* subsp. *chatelainiana* resembles *S. artemisioides* subsp. *stricta*, from which it may be separated by the longer hairy petals, and green leaflets of subsp. *chatelainiana*.

Selection of specimens examined (c. 100 seen)

WESTERN AUSTRALIA: near Payne's Find, *Blackall* 3891, 10.ix.1938 (PERTH); Yandel, near Lake Darlot, *Blackall* s.n., -ix.1939 (PERTH); 30 miles S Leonora, *Brockway* s.n., 8.x.1947 (PERTH); Glenorn near Malcolm, *Cleland* s.n., 31.viii.1948 (AD); 107 miles N Carnarvon, *Aplin* 1584, 27.v.1962 (PERTH); Meekatharra Racecourse, *Aplin* 2470, 24.viii.1963 (AD); near Mt Gibson (Tea Chest turnoff), *Gardner* 14362, 25.viii.1963 (PERTH); S Mullewa (c. 86 km NNE Geraldton), *Ashby* 329, 6.ix.1963 (AD); 2 miles S Meekatharra, *Fairall & Lullfuz* 2576, 12.x.1963 (PERTH); S Howatharra (c. 45 km N Geraldton), *Ashby* 1579, 6.viii.1965 (AD); Brown Ra., S Carnarvon, *Turner* 5412, 25.viii.1965 (chromosome voucher n=14, PERTH); Landor Stn, E Carnarvon on road to Meekatharra, *O'Farrell* 53, -vii.1967 (PERTH); near James Pool, Windidda Station, *Chinnock* 826, 6.ix.1973 (AD, PERTH); Dirk Hartog Is., *Beard* 7082, 17.x.1974 (PERTH); Callatharra Springs, *Cranfield* 2130, 27.iv.1982 (PERTH).

The following two forms may be good subspecies of *S. glutinosa* or may be groupings of hybrid plants derived from subsp. *chatelainiana*. Only population studies will clarify this problem.

(i) form 'acifolia'

Description

Leaflets 3-5 pairs, terete or linear, 6-20 mm x 1 mm; *indumentum* sparse of soft appressed hairs; *cuticular wax* of thick sheets; *petioles* terete, to 20 mm long; *stipules* acicular, always persistent; *glands* 1-2, stalked, elongate and pointed. Plate 13f.

Specimens examined

WESTERN AUSTRALIA: Lake Darlot, N Malcolm, *Gardner & Blackall* s.n., s.d. (PERTH); Wongawol Ck, Ereman Province, *Speck* 1292, 22.ix.1958 (PERTH); Teutonic minesite, *Cumming* 1269, 20.viii.1981 (PERTH).

(ii) form 'aplinii'

Description

Leaflets usually 4 pairs, narrow elliptic, 20-25 mm x 2 mm; *indumentum* sparse, of soft appressed hairs; *cuticular wax* in thick sheets; *petioles* terete to 25 mm long; *stipules* acicular, long persistent; *glands* stalked or sessile, elongate and pointed. Plate 13h.

Specimens examined

WESTERN AUSTRALIA: 21 miles S Wiluna, *Aplin* 2406, 20.viii.1963, (PERTH); 104 km from Mt Magnet towards Mullewa, *Chadwick* 726, -vii-viii.1963, (PERTH); Woolawarra ? (sic), *DG.W* s.n., s.d., no flowers, (PERTH).

7.3 subsp. × *luerssenii* (Domin) Randell, comb. nov.

Basionym: *Cassia luerssenii* Domin, *Biblioth. Bot.* 89: 794 (1926); Symon, *Trans. Roy. Soc. S. Australia* 90: 128 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970); Symon in Jessop, *Fl. Central Australia* 113 (1981).

Holotype: Nordwest-Australien: zwischen Ashburton — und De Grey River, *E. Clement* s.n., PR; *isotype*: K (photo), fide Symon (1966).



Map 7. *S. glutinosa* subsp. *glutinosa*. Map 8. *S. glutinosa* subsp. *chatelainiana*. Map 9. *S. glutinosa* subsp. \times *luerssenii*. Map 10. *S. glutinosa* subsp. *pruinosa*.

Description

Very variable; *leaflets* 4-6 pairs, narrow elliptic, 10-15 mm x 1-2.5 mm; *indumentum* almost absent; *cuticular wax* present either as thick sheets, powder, flakes or glutinous semi-liquid; *petioles* terete, to 15 mm long; *stipules* acicular to falcate, to 3 mm broad, sometimes persistent; *glands* usually sessile and flat, rarely stalked. Tetraploid only, $n = c. 24$ (Turner, cited in Symon 1966). Plate 13a.

Distribution and ecology

Scattered in arid shrublands of north-west of Western Australia. Map 9, p. 212.

Notes

Differs from other subspecies in having petals usually more than 11 mm, rarely only 7-10 mm long.

Subsp. \times *luerssensii* is here regarded as a taxon of convenience, containing hybrids derived from the combinations subsp. *chatelainiana*, *pruinosa* and/or *glutinosa*, in many different populations in many different places. It is thus not surprising that it does contain individual specimens exhibiting considerable variation from each other. However, the specimens are united by their large flowers, their narrow elliptic leaflets, their usually sessile foliar glands, and the fact that leaflets are often shorter than the distance between pairs of leaflets. However, specimens are readily found bridging the discontinuity between all these subspecies, and an arbitrary decision on separating the subspecies has been made (see under subsp. *chatelainiana*).

Selection of specimens examined (c. 60 seen)

WESTERN AUSTRALIA: 40 miles S Nicholson Stn, *Perry 2436*, 13.vii.1946 (AD, CANB); 9 miles N Wongawol, Nullagine Hills, *Speck 1277*, 22.viii.1958 (AD, CANB); Dampier Archipelago, near Roebourne, *Royce 7323*, 10.vi.1962 (PERTH); Sir Frederick Ra., *Symon 2247*, 1.viii.1962 (AD); Pass of the Abencerrages, Rawlinson Ra., *Symon 2485*, 4.viii.1962 (AD); Mt William-Lambert, Gibson Desert, *George 5457*, 26.vii.1963 (PERTH); 10-20 miles N Nullagine, *Beard 2829*, 15.viii.1963 (PERTH); 546 mile peg N Meekatharra, *Lullfitz & Fairall 2606*, 14.x.1963 (PERTH); Camballin, *Power 735*, -v.1970 (CANB, PERTH); *Canning Stock Route between Weld Spring and Pierre Spring (750-800 km NE Geraldton)*, *Ashby 3523*, 2-14.viii.1970 (AD); Mulgul c. 490 km E Carnarvon, *Ashby 3350a*, 8.viii.1970 (AD); Mt Augustus c. 325 km ENE Carnarvon, *Ashby 3350b*, 9.viii.1970 (AD); c. 155 km from Nanutarra (c. 105 km SSE Onslow), *Ashby 4120*, 3.viii.1971 (AD); c. 112 km by road N Kumarina Roadhouse, *Jackson 2904*, 17.viii.1977 (AD); 34 km SE Mt Vernon Hstd, *Toelken 6360*, 24.ix.1979 (AD, MTJB); plains within Hamersley Ra., creek 4 km N Paraburdoo, *Boomsma 575*, 24.vi.1980 (AD).

7.4 subsp. *pruinosa* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia pruinosa* F. Muell., *Phragm.* 3: 48 (1862); Benth., *Fl. Austral.* 2: 286 (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 129 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 63 (1970); Erickson et al., *Fl. & Pl. Western Australia* 159, 206, 209 (1979); Symon in Jessop, *Fl. Central Australia* 113 (1981).

Lectotype: In rocky hills at the mouth of Nickol Bay, Western Australia, Pemb. Walcott s.n., P (photo), lectotype here designated; *isolecto*: MEL! (fragmentary).

Description

Leaflets 3-5 pairs, broad elliptic, 10-20 mm x 4-7 (-12) mm; *indumentum* almost absent; *cuticular wax* rarely in thick sheets or absent, usually as dense powder or flakes; *petioles* terete, 10 mm long; *stipules* broad-falcate, 2-4 mm broad, persistent; *glands* sessile and flat. Tetraploid $n=28$, one record (Randell 1970). Plate 13c.

Distribution and ecology

Scattered in arid shrublands of north-west Western Australia, and central Northern Territory. Map 10, p. 212.

Notes

Rare specimens (e.g. on Barrow Is. and Dampier Archipelago) show no development of cuticular wax and thus appear green. Either the character has been lost since the isolation of these populations on the offshore islands, or these plants represent the ancestral character state in subsp. *pruinosa*. No evidence is available to solve this problem. Hybrids are frequent. See under subsp. *chatelainiana* for discussion.

Selection of specimens examined (c. 60 seen)

WESTERN AUSTRALIA: Woodstock, *Ealey E/115*, s.d. (AD, CANB, PERTH); West Lewis Is., Dampier Archipelago, *Royce 7407*, 13.vi.1962 (PERTH); 10-20 miles N Nullagine, *Beard 2826*, 15.viii.1963 (PERTH); Cape Ra., *Beard 3573*, 22.vii.1964 (PERTH); Robe R., between Onslow and Roebourne, *Butler 14*, 27.viii.1966 (PERTH); Sir Frederick Ra., N Rawlinson Ra., *George 8325*, 5.x.1966 (PERTH); 11 miles N Mulga Downs turnoff, S Pt Hedland, *Barlow 1147/a*, 29.vi.1967 (AD); Newman area, *Walker 144*, 4.viii.1980 (PERTH); Barrow Is., *Buckley 6937*, -x.1980 (PERTH).

NORTHERN TERRITORY: Macdonald Stn, c. 170 km NE Alice Springs, *Ising 3150*, -.viii.1933 (AD); hill near Yuendumu, c. 270 km NW Alice Springs, *Cleland s.n.*, 24.viii.1951 (AD); 8 miles N Barrow Creek Telegraph Stn, *Forde 210*, 4.vii.1956 (AD, DNA); Haasts Bluff Reserve, c. 210 km WNW Alice Springs, *Cleland s.n.*, 16.viii.1956 (AD); Highland Rock area, Maconochie 1091, 31.vii.1970 (AD, DNA); Andado Stn, *Latz 6809*, 15.iv.1977 (AD, BRI, DNA).

QUEENSLAND: 13 miles S Dajarra township, *Perry 4054*, 4.ix.1953 (AD, CANB); Mt Isa, *J. & M. Pocock s.n.*, 30.vii.1968 (AD).

SOUTH AUSTRALIA: Lyndhurst, c. 50 km NE Leigh Ck, *Koch 265*, -.ix.1898 (AD); Pedirka, *Ising 3118*, 29.viii.1932 (AD); Granite Downs, *S.A. Pastoral Board s.n.*, 11.x.1958 (AD); Emery Ranges, c. 22 km E Pedirka, *Lothian 4799*, 27.vii.1968 (AD); SE Welbourne Hill, *Conrick 751*, 13.vii.1982 (AD).

7.5 subsp. *charlesiana* (Symon) Randell, comb. nov.

Basionym: *Cassia charlesiana* Symon, *Trans. Roy. Soc. S. Australia* 90: 126 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970).

Holotype: One mile north of Pintharuka, W.A., *C.A. Gardner 7540*, 29.viii.1945, PERTH!

Description

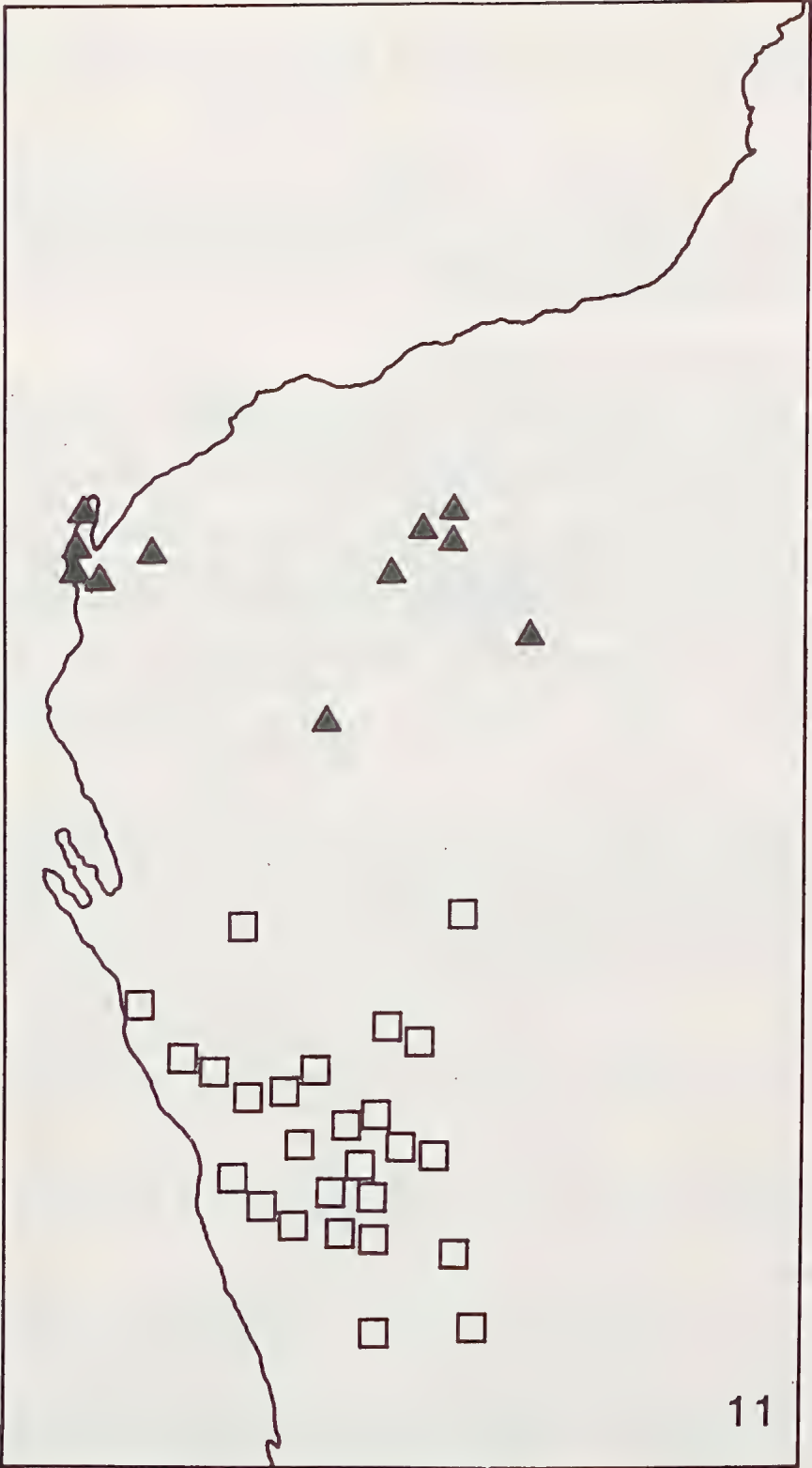
Leaflets 0-2 pairs, terete 5-20 mm long, 1 mm diameter; *indumentum* almost absent, of soft and appressed hairs; *cuticular wax* in thick sheets; *petioles* terete, to 100 mm long; *stipules* acicular more or less caducous; *glands* sessile and flat. Plates 12g-h, 13b.

Distribution and ecology

Scattered in arid shrublands of southern inland Western Australia. Map 11, p. 218.

Selection of specimens examined (28 seen)

WESTERN AUSTRALIA: Murchison, *Tunney 146*, -.viii.1899 (PERTH); Carnamah, Victoria District, *Morrison 16355*, 30.x.1906 (PERTH); Merredin, *Gardner 720*, 30.viii.1920 (PERTH); between Wongan Hills and Morawa, *Blackall 2828*, 25.ix.1932 (PERTH); Mt Singleton, *Gardner s.n.*, -.viii.1953 (PERTH); Jibberding (?), *Gardner 12084*, 8.ix.1953 (PERTH); 16 miles S Mt Magnet, *Lange s.n.*, 26.vii.1958 (PERTH); Dowerin, *Rosier 70*, -.vii.1959 (PERTH); 22 km from Mt Magnet on Geraldton road, *Goodall 839*, 8.xi.1963 (PERTH); Tenindewa (c. 70 km ENE Geraldton), *Ashby 1057*, 29.viii.1964 (AD); Morawa, *Rennie 3*, -.x.1964 (PERTH); 61 miles NE Wubin, *Newbey 650808*, -.viii.1965 (PERTH); E Yuna Reserve, NE Geraldton, *Burns 40*, 23.viii.1967 (PERTH); 1.4 miles E Payne's Find, *Scrymgeour 2124*, 20.ix.1967 (K, PERTH); Bindoo Hill Reserve, 27 km WNW Mullewa, *Muir 453*, 18.x.1976 (PERTH); 2 miles from Kalbarri, *Wemm 1169*, 3.ix.1978 (PERTH).



Map 11. □ *S. glutinosa* subsp. *charlesiana*; ▲ *S. glutinosa* subsp. *ferraria*.

The following form probably comprises hybrids derived from subsp. *charlesiana*. Alternatively it may represent another subspecies of *S. glutinosa*. Only information on the breeding structure of the populations in which it occurs will clarify this point.

i) form 'falcata'

Description

Leaflets 1-2 pairs, terete or laterally compressed, 20-30 mm x 2 mm; *indumentum* sparse, of soft appressed hairs; *cuticular wax* in thick sheets; *petioles* laterally compressed, 50-60 mm long, 2-4 mm broad; *stipules* acicular, deciduous; *glands* sessile or stalked, flat. Plate 13d.

Specimens examined

WESTERN AUSTRALIA: 19 km S Wiluna on Agnew rd, *Beaglehole* 59577, 13.ix.1978 (PERTH); Teutonic airstrip, *Cummings* 1216, 2.viii.1981 (PERTH).

The Teutonic Airstrip site was revisited during 1986. The "population" consisted of 2 shrubs of form 'falcata' beside an eroded stream bed, and it was obvious that seeds had been derived from a source higher up the stream. The shrubs were 1-1.5 m tall, indicating that they were several years old, but the absence of younger plants beneath the two shrubs, (in contrast to the situation in populations of other taxa in the same general area) suggested that few viable seeds were being set. This evidence suggests a hybrid origin for form 'falcata'.

Several plants of *S. artemisioides* subsp. \times *sturtii* were found within 100 m, but there was no evidence for interbreeding.

7.6 subsp. *ferraria* (Symon) Randell, comb. nov.

Basionym: *Cassia ferraria* Symon, *Trans. Roy. Soc. S. Australia* 90: 130 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970); Erickson et al., *Fl. & Pl. Western Australia* 211 (1979).

Holotype: Hamersley Ranges Western Australia, over the iron ore body at Mt Tom Price, *M.M. Cole WA5104*, 1963, PERTH!; *isotype*: K.

Description

Leaflets (2-) 3 (-4) pairs, broad elliptic to oblanceolate, (20-) 30-40 (-50) mm x 10-15 mm; *indumentum* sparse of soft appressed hairs; *cuticular wax* in thick sheets, sometimes glaucous; *petiole* terete, 5-15 mm long, robust (1.5-2.0 mm diameter); *stipules* acicular somewhat persistent; *glands* sessile, large flat and dark. Plate 13g.

Distribution and ecology

Scattered in arid shrublands of north western Western Australia. Map 11, p. 218.

Notes

Specimens from Hamersley Range area have broader obovate leaflets, while specimens from Cape Range have narrower, elliptic-obovate leaflets with obtuse apices. However, they all share the robust petioles and prominent orange-brown lower midrib of the type.

Specimens from Hamersley Range have been confused with *S. artemisioides* subsp. *oligophylla* from which they may be separated by the longer hairy petals and the prominent abaxial leaflet midribs of subsp. *ferraria*.

Comparison with other, better known, taxa suggests that cytological examination might reveal a diploid race.

Selection of specimens examined (12 seen)

WESTERN AUSTRALIA: Yampire Gorge, Hamersley Ra., *Gardner 12280*, -viii.1959 (PERTH); 1 mile E Yanrey Hstd, *George 1170*, 24.viii.1960 (PERTH); Cape Ra., *George 1329*, 30.viii.1960 (PERTH); 1 mile S Vlaming Head Lighthouse, *George 2578*, 3.vi.1961 (PERTH); above Dale's Gorge, *Blockley 416*, 14.ix.1969 (PERTH); Hamersley Ra. Natl Pk., *Beaglehole 48784*, ii.viii.1974 (AD); Newman area, *Walker 135*, 4.viii.1980 (PERTH).

8. *S. artemisioides* (DC.) Randell, comb. nov.

Basionym: *Cassia artemisioides* DC., *Prodr.* 2: 495 (1825); J. Vogel, *Gen. Cass. syn.* 47 (1837); Benth., *Fl. Austral.* 2: 188 (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Symon, *Trans. Roy. Soc. South Australia* 90: 117 (1966).

Lectotype: Novae Hollandiae interioribus legit cl Fraser (vs. in h Gaudichaud), *Fraser 100*, E, (photo), fide Symon, *Trans. Roy. Soc. S. Australia* 90: 117 (1966).

Syntypes: (i) 'N. Holl., 163 Fraser (*Cassia flindersii*)' K (photo) on a sheet of two collections, the second labelled 'Mt Flinders, (*Cassia glaucescens*) without collection details' and (ii) 'Pt Jackson, N. Holl., *C. Gaudichaud* [*Cassia (teretifolia)*]', P, (photo).

The above basionym and lectotype apply to the species and type subspecies. All synonyms are listed under the subspecies to which they apply.

Description

Medium to tall shrub 1-3 m tall, usually with several stems; *leaflets* 0-8 pairs, more than 5 mm apart on rachis (less in subsp. *symonii*), variable in form and indumentum, all equal or increasing in size from the base of the petiole; *glands* sessile and flat; *petiole* 6-14 mm long (except subsp. *symonii* 1-5 mm, and subsp. *petiolaris* to 60 mm), terete or laterally compressed (and then longer); *stipules* acicular, caducous; *inflorescence* an axillary subumbellate raceme near the end of branches; *bracts* usually caducous at anthesis, rarely persistent (in eg. subsp. *oligophylla*); *sepals* oval 6-8 mm long; *petals* 7-10 mm long (rarely 4-6 mm in subsp. *filifolia* and subsp. \times *coriacea*), usually glabrous (rarely pubescent dorsally in hybrid forms); *anthers* 10, 4-5 mm long; *filaments* subequal, 7 adaxial 1 mm long, 3 abaxial 2 mm long; *ovary* 5-6 mm long; *pod* 5-10 cm \times 8-15 mm, straight or circinate coiled, glabrous; *seed* about 6 mm long. Plates 14, 15, 16.

Notes

The author citation of *C. artemisioides* Gaud. in DC., cited by Symon (1966) is here changed to Gaud. ex DC., indicating that De Candolle was responsible for the publication of the work (confirmed R. Brummitt, N. Luder pers. comm.)

This species is very widespread in the central, northern and southern arid areas. Frequently seen are single populations containing 3 or more of the subspecies here recognized, and these are interpreted as hybrid swarms (Symon 1955; Randell 1969, 1970, this paper). In addition, some hybrids with subspecies of *S. glutinosa* and *S. cardiosperma* are also known (see notes to various subspecies).

The subspecies of *S. artemisioides* vary considerably in leaflet form, number, and indumentum; but are united by the length of the petiole (more than 5 mm), and the spacing of the leaflets (6-16 mm apart). In addition, most specimens have petals of medium length, though variations are known. Some hybrids derived from crosses with subspecies of *S. cardiosperma* have petals less than 6 mm long, as do some specimens of *S. artemisioides* subsp. *filifolia* from the Simpson Desert.

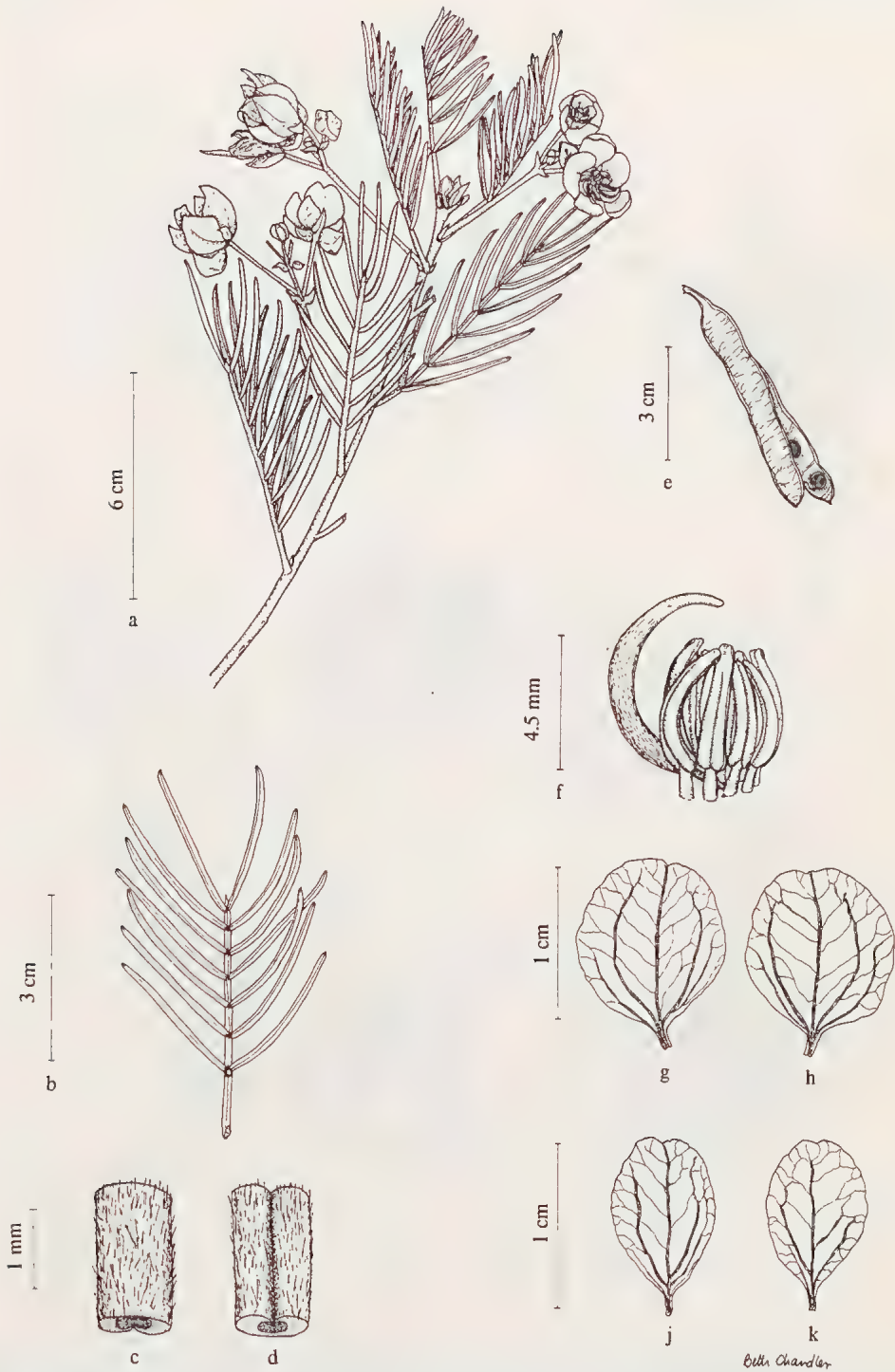
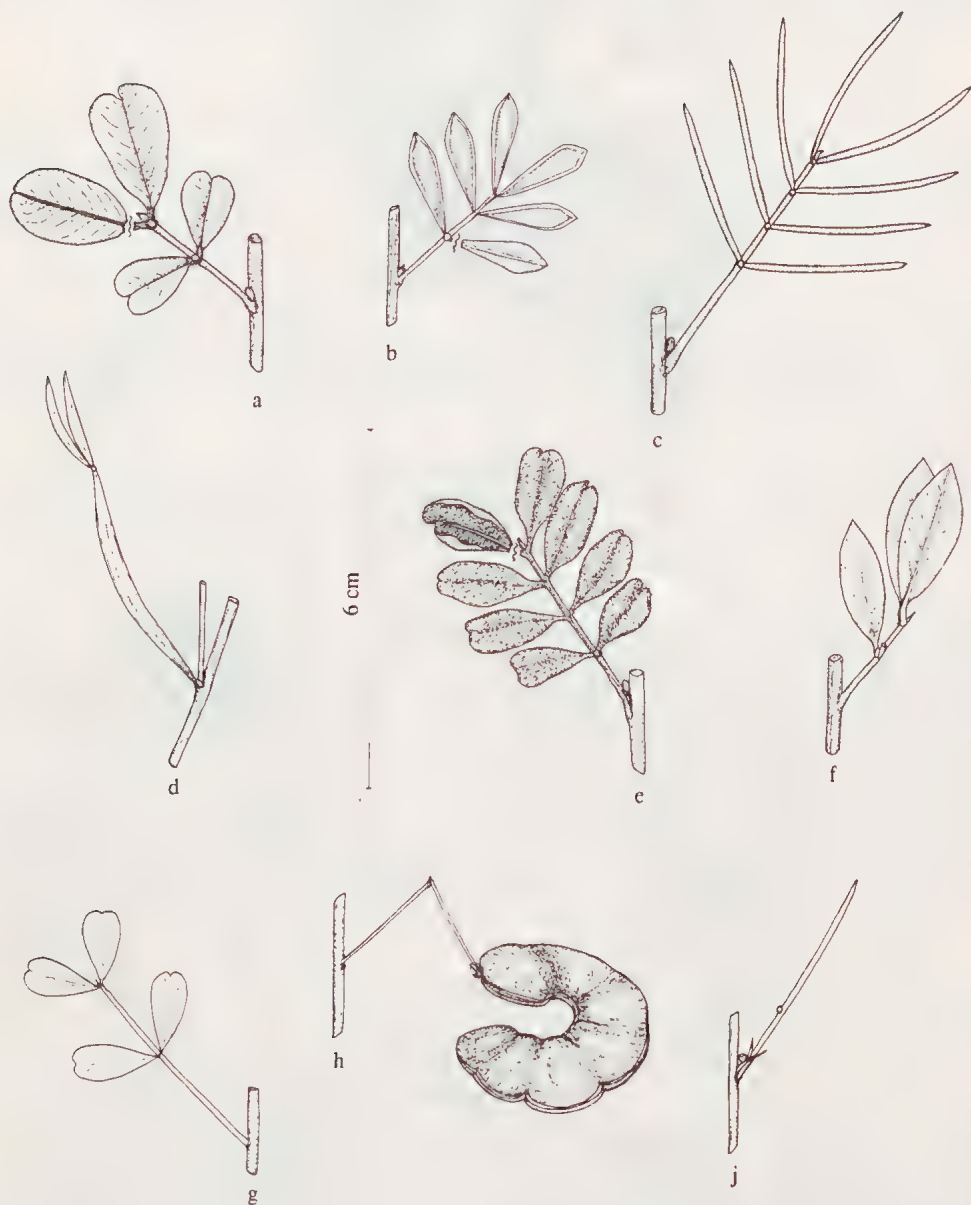


Plate 14. *S. artemisioides* subsp. \times *artemisioides*. a. habit, b. leaf detail, c. leaflet adaxial epidermis, d. leaflet abaxial epidermis, all from *Brockway s.n.*, 17.ix.1947. e. pod from *D7208*; f. anthers, g. largest petal adaxial surface, h. largest petal abaxial surface, j. smallest petal adaxial surface, k. smallest petal abaxial surface, all from living material cultivated Adelaide Botanic Garden, *Randell 396*.



Senna artemisioides

Plate 15. *S. artemisioides* subspecies. Leaf structure. a. subsp. *oligophylla*, Barker 1985; b. subsp. \times *coriacea*, Donner 1618; c. subsp. *filifolia*, Sim s.n., -viii.1955; d. subsp. *petiolaris*, Randell 224/230; e. subsp. *helmsii*, Conrick 976; f. subsp. *alicia*, Randell 221/116; g-j. subsp. *circinnata*; g. seedling leaf, Symon 11518 (cult. W.A.R.I.); h. pod, j. mature leaf, both from Symon s.n., -v.1964. (a, b, e with one leaflet reversed; f with one leaflet removed).

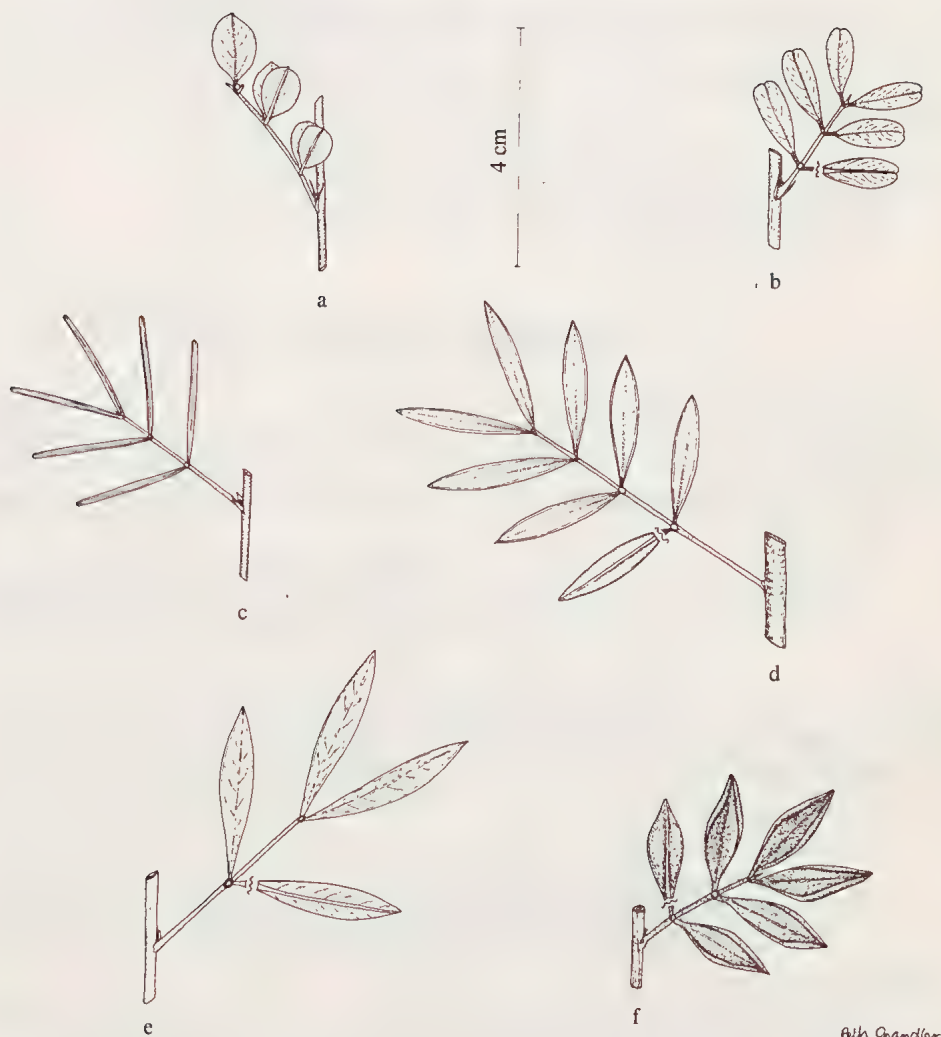


Plate 16. *S. artemisioides* subspecies. Leaf structure. a. subsp. *hamersleyensis*, Cranfield s.n., 6.viii.1981; b. subsp. *symonii*, Burbidge 1142; c. subsp. *stricta*, Kuhl s.n., -x.1967; d. subsp. *glaucifolia*, Hill 1366; e. subsp. *quadrifolia*, Turner s.n., 4.ix.1960; f. subsp. \times *sturtii*, Mitchell 76/9. (a. one leaflet removed, b, d, e, f each with one leaflet reversed).

Cytology

Diploid races are known in 4 of the 15 subspecies, while triploids and/or tetraploids are known in 9. The widespread variable, polyploid subspp. \times *artemisioides*, *filifolia*, *petiolaris* and \times *coriacea* are involved in the bulk of the hybrid swarms within *S. artemisioides* as well as virtually all the hybridizations with other species.

Key to the subspecies and subspecies groups of *S. artemisioides*

[Note: In arid areas of Australia, many populations are encountered which contain several of the subspecies recognised here, as well as plants of intermediate morphology.]

1. Petioles laterally compressed 3. subsp. *petiolaris*
1. Petioles terete:
 2. Leaflets 0, or quite terete, or laterally compressed group A
 2. Leaflets dorsiventrally compressed:
 3. Leaflets conspicuously hairy group B
 3. Leaflets without conspicuous hairs group C

Key to subspecies of group A

1. Mature leaves without leaflets:
 2. Petioles laterally compressed 3. subsp. *petiolaris*
 2. Petioles terete 4. subsp. *circinnata*
1. Mature leaves with leaflets:
 3. Petioles laterally compressed 3. subsp. *petiolaris*
 3. Petioles terete:
 4. Leaflets 1 pair, or 2-4 pairs and petioles 16 mm or longer; glabrous to sparsely hairy 2. subsp. *filifolia*
 4. Leaflets 2-8 pairs; petioles less than 15 mm long; sparsely to densely hairy ... 1. subsp. \times *artemisioides*

Key to the subspecies of group B

1. Leaflets obovate to oval:
 2. Leaflets densely woolly hairy 9. subsp. *helmsii*
 2. Leaflets silky hairy:
 3. Peduncles much longer than leaves; plant almost prostrate, to 0.2 m tall ... 15. subsp. *hamersleyensis*
 3. Peduncles shorter than leaves; plant erect, 0.5-2 m tall:
 4. Petiole 3-8 mm long; leaflets 8-20 mm long, 1-8 mm apart 14. subsp. *symonii*
 4. Petiole 5-15 mm long; leaflets 20-40 mm long, 15-25 mm apart 8. subsp. *oligophylla*
1. Leaflets linear to elliptic:
 5. Leaflets linear and inrolled so that upper surface is not visible 1. subsp. \times *artemisioides*
 5. Leaflets with upper surface exposed:
 6. Petiole 15-25 mm long 11. subsp. *quadrifolia*
 6. Petiole \leq 15 mm long:
 7. Leaflets densely silky to woolly hairy; never glaucous 10. subsp. \times *sturtii*
 7. Leaflets glabrous to sparsely hairy; glaucous:
 8. Petiole 3-8 mm long; restricted distribution NW W.A. 14. subsp. *symonii*
 8. Petiole 5-15 mm long; widespread and very variable; southern and eastern W.A., N.T., N.S.W., Vict., S.A. 5. subsp. \times *coriacea*

Key to subspecies of group C

1. Leaflets obovate to oval:
 2. Petiole 3-8 mm long; leaflets 8-20 mm long, 1-8 mm apart 14. subsp. *symonii*
 2. Petiole 5-15 mm long; leaflets 20-40 mm long, 15-25 mm apart 8. subsp. *oligophylla*
1. Leaflets linear to elliptic to obovate:
 3. Leaflets >5 times longer than broad:
 4. Leaflets 4-5 pairs, 1-2 mm broad; W.A. 13. subsp. *stricta*
 4. Leaflets 1-2 pairs, 2-4 mm broad; N.S.W., Qld 6. subsp. *zygophylla*
 3. Leaflets (5 times longer than broad)
 5. Leaflets 1-2 pairs; members of each leaflet pair carried more or less vertically, with adaxial surfaces opposed 7. subsp. *alicia*
 5. Leaflets 1-4 pairs, members of each leaflet pair carried more or less horizontally:
 6. Leaflets 3-4 pairs, acute, 10-25 mm long, reddish glaucous 12. subsp. *glaucifolia*
 6. Leaflets 1-6 pairs, obtuse, 8-30 mm long, blue-grey glaucous:
 7. Petiole 3-8 mm long; restricted distribution NW of W.A. 14. subsp. *symonii*
 7. Petiole 5-15 mm long; widespread and very variable; southern and eastern W.A., N.T., N.S.W., Vict., S.A. 5. subsp. \times *coriacea*

8.1 subsp. \times *artemisioides*

Basionym and lectotype: as for the species

Synonyms

1. *Cassia teretifolia* A. Cunn. ex Lindley in Mitchell, *Three Expeditions into the interior of Eastern Australia* 1: 286 (1838).

Holotype: 'This plant was found by Mr Cunningham in 1817 on Mt Flinders when he called it *Cassia teretifolia*', *Cunningham 184*, K (photo).

2. *Cassia teretiscula* F. Muell., *Linnaea* 25: 389 (1853).

Holotype: 'In stony hills near Cudnaka (Flinders Ranges, Sth Australia)', *F. Mueller s.n.*, MEL! (photo).

Description

Leaflets 3-8 pairs, terete or linear and tightly inrolled, 15-25 mm long, 1 mm diameter; *indumentum* sparse to dense, of straight or woolly hairs; *petioles* terete, 6-15 mm long. Triploid $n=42/2$ restricted (near Alice Springs, N.T., and Flinders Ranges, S.A.), tetraploid $n=28$ widespread (Randell 1970). Plate 14a-k.

Distribution and ecology

Widely distributed in many different situations from rocky hillsides to deep desert sand, in inland areas of all mainland states. Map 12, p. 226.

Notes

Symon (1966) made an arbitrary decision separating the two terete-leaflet forms on the number of leaflets, with those having 3 or more leaflet pairs placed in *C. artemisioides* and those with 1-2 in *C. nemophila*.

Examination of many specimens has revealed that though there is still a series of intermediate forms, a better separation results if an arbitrary separation is made placing emphasis on the length of the petiole thus:

Leaflets 2-8 pairs, petiole 6-14 mm long subsp. \times *artemisioides*

Leaflets 1 pair, or petiole more than 15 mm long subsp. *filifolia*



Map 12. *S. artemisioides* subsp. \times *artemisioides*. Map 13. *S. artemisioides* subsp. *filifolia*. Map 14. *S. artemisioides* subsp. *petiolaris*. Map 15. *S. artemisioides* subsp. *circinnata*. Map 16. *S. artemisioides* subsp. \times *coriacea*. Map 17. *S. artemisioides* subsp. *alicia*. Map 18. *S. artemisioides* subsp. *oligophylla*. Map 19. *S. artemisioides* subsp. *helmsii*.

Previously, diploids of both *C. artemisioides* and *C. nemophila* var. *nemophila* were recorded for a single population (Randell 223) outside Alice Springs (Randell 1970). Under the present system, the two closely related forms both fall within subsp. *filifolia*.

A second series of intermediates links subsp. \times *artemisioides* with subsp. \times *sturtii* and then with subsp. *helmsii*. It has been suggested (Randell 1970) that subsp. \times *sturtii* is always of hybrid derivation, and the present study has not produced evidence to refute this.

The taxon subsp. \times *artemisioides* itself forms the intermediate link in a series of forms linking *S. cardiosperma* subsp. *microphylla* and *S. artemisioides* subsp. *filifolia*, as it is intermediate in several vegetative characters viz. leaflet numbers, leaflet length, indumentum density, petiole length, spacing between leaflets. From this evidence it is suggested that subsp. \times *artemisioides* itself is also of hybrid derivation and is thus a taxon of convenience, not a natural taxon. No diploids have been recorded within subsp. \times *artemisioides* as here circumscribed.

Besides those already mentioned, subsp. \times *artemisioides* is known to be associated in hybrid swarms with the following subspecies: *S. artemisioides* subsp. *oligophylla*, \times *coriacea*, *quadrifolia*, *petiolaris*, *S. cardiosperma* subsp. *gawlerensis*, and *S. glutinosa* subsp. *glutinosa*.

Selection of specimens examined (c. 500 seen)

WESTERN AUSTRALIA: Lawlers, *Burbidge 4820*, 14.xii.1955 (AD, CANB); 5 miles W Meekatharra, *Speck 577*, 3.ix.1956 (AD, CANB); c. 890 km from Perth on Inland Highway, *Ashby 4219*, 7.viii.1971 (AD, DNA, UMO, UWM); 77 km W Serpentine Lakes, c. 250 km N Deakin, *Donner 3948*, 18.vii.1972 (AD, LASCA, TI, W, Z); 8.2 km S Yamarna, *Toelken 6052*, 8.ix.1979 (AD, MCT-F).

NORTHERN TERRITORY: Palm Valley, c. 125 km SW Alice Springs, *Beaglehole 10333*, 7.vi.1965 (AD, AS, CANB, NSW); Alice Springs to Hamilton Downs rd, c. 40 km WNW Alice Springs, *Orchard 681*, 5.vii.1968 (AD, C, DNA, P); c. 5 km SE Alice Springs, *Weber 890*, 6.vii.1968 (AD, PE, PR); Standley Chasm, c. 49 km W Alice Springs, *Orchard 832*, 14.vii.1968 (AD, H, HO, TI, WC); Mt Cavenagh, c. 20 km SW of Kulgera Hstd, *Munir 5087*, 20.viii.1973 (AD, BRI, DNA); Cadney Bore, Hamilton Downs Stn, *Conrick 1400*, 1.iv.1983 (AD, IASO, LSN, NLN).

QUEENSLAND: c. 45 km N Adavale, *Wollaston s.n.*, 1.vii.1967 (AD).

NEW SOUTH WALES: Cobar, *Cleland s.n.*, 4.ix.1911 (AD); Broken Hill, *Reed s.n.*, 21.viii.1921 (AD); near Broken Hill, *Ashby s.n.*, 11.vii.1934 (AD); Fowler's Gap, c. 110 km N Broken Hill, *Richley F2*, 20.ix.1973 (AD).

SOUTH AUSTRALIA: 9 km W Tarcoola, *Conrick 455*, s.d. (AD, NSW); small hill just south Mt Gairdner c. 55 km WNW Nonning, c. 120 km W Pt Augusta, *Carrick 2370*, 29.ix.1969 (AD, BRI, CHR, COLO, TI); Angepena, Flinders Ranges, *Conrick AD114*, 20.viii.1977 (AD, MEL); unnamed conservation park, 53.5 km W Vokes Corner, *Donner 7466*, 27.viii.1980 (AD, DNA, OSAKA, OSH, P); 2 km SE Anna Creek Hstd, *Badman 1162*, 3.vi.1984 (AD, CMG, MEL).

8.2 subsp. *filifolia* Randell, subsp. nov.

Subsp. artemisioidi affinis sed foliolis teretibus paucioribus (1-4-jugis) et petiolis longioribus (plus quam 1.6 cm) differt. (Affinities with subsp. \times *artemisioides*, but differs in fewer leaflets (1-4 pairs) and longer petioles (more than 1.6 cm long).

Holotype: 20 miles NW Alice Springs, *Randell 223/117*, 30.viii.1967, AD.

Paratypes: *Randell 223/14*; *223/13*; *223/120*; *223/237*; *223/241*, all AD.

Synonyms

No name has ever been given to this form with few, strictly terete leaflets. The epithet previously applied (i.e. 'eremophila') belongs to forms with dorsi-ventrally flattened leaflets (see under subsp. \times *coriacea*). Names incorrectly applied are listed below.

1. *Cassia eremophila* sensu Benth., *Fl. Austral.* 2: 287 (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Bailey, *Fl. Queensland* 461 (1900); Black, *Fl. S. Australia* 431 (1948); Blackall & Grieve, *How to Know Western Austral. Wildfl.* 1: 183 (1954); non A. Cunn. ex J. Vogel.

2. *Cassia nemophila* var. *nemophila* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 120 (1966); Willis, *Handb. Pl. Victoria* 246 (1972); Symon in Jessop, *Fl. Central Australia* 111 (1981); Stanley & Ross, *Fl. South East Queensland* 391 (1983).

3. *Cassia eremophila* var. *eremophila* sensu Cunningham et al., *Pl. W. New South Wales* 379 (1981).

Description

Leaflets 1-4 pairs, terete, 20-40 mm long, 1 mm diameter; *indumentum* very sparse on young leaves, becoming glabrous; *petiole* terete, 15-25 mm long. Diploid $n=14$, triploid $n=42/2$ (both Alice Springs), tetraploid $n=28$ widespread (Randell 1970). Plate 15c.

Distribution and ecology

Widespread in a variety of habitats, from rocky slopes to deep sand, through wide areas of all mainland states. Map 13, p. 226.

Notes

The name chosen here describes the filiform leaflets.

In this taxon, petals are usually glabrous, but rarely are sparsely pubescent in hybrids derived from crosses with *S. glutinosa* subspecies. They are usually 7-10 mm long, rarely 4-6 mm long in specimens from the Simpson Desert.

See under subsp. \times *artemisioides* for discussion on intergradation between terete-leaflet forms. A second series of intermediates links subsp. *filifolia* with broad-leaflet taxa (e.g. subsp. \times *coriacea* or *quadrifolia*). Arbitrary decisions are made to separate the taxa as follows:

Leaflets terete, petiole more than 15 mm long subsp. *filifolia*
 Leaflets flat, petiole less than 15 mm long subsp. \times *coriacea*
 Leaflets flat, petiole more than 15 mm long subsp. *quadrifolia*

Hybrid swarms involving subsp. *filifolia* have also been seen to include the following taxa: *S. artemisioides* subsp. *helmsii*, *oligophylla*, *alicia*, \times *sturtii*, and *petiolaris*; also *S. cardiosperma* subsp. *gawlerensis*, and *S. glutinosa* subsp. *glutinosa*.

Selection of specimens examined (c. 800 seen).

WESTERN AUSTRALIA: Kalgoorlie to Coolgardie, *Ashby* 179, 7.viii.1963 (AD); 100 km S Balladonia [sic], *Wilson* 2888, 10.ix.1964 (AD, PERTH, S); 70 km S Leonora, *Donner* 4522, 3.ix.1973 (AD, PERTH).

NORTHERN TERRITORY: MacDonnell Ranges, hill 8 miles past Tea Tree Well, *Lothian* 389, vii-viii.1954 (AD, G, IA, K, L, P); 28 miles ENE Hermannsburg Mission, *Lazarides* 5315, 16.v.1955 (AD, CANB); Chambers Pillar, *Lothian* 4419, 22.vii.1968 (AD, PRE); Atcherie Ck crossing by road Ammaroo-Elkedra, c. 3.7 km by road N Honeymoon Bore, *Donner* 6254, 15.viii.1978 (AD, M, MEL).

QUEENSLAND: Carcory waterhole, Birdsville, *South Aust. Pastoral Board s.n.*, 26.vi.1953 (AD); 12 miles SW Moray Downs Stn, *Adams* 1182, 24.vii.1964 (AD, CANB); 19.5 km NNW turnoff to Kyabra Stn at Thylongra Hstd, main Quilpie-Windorah road, *Donner* 6097, 4.viii.1978 (AD, UGWV, US); Bedourie road, 6 km N Birdsville, *Grandison* 85, 31.viii.1978 (AD).

NEW SOUTH WALES: Pilliga Scrub c. 80 km NE Coonamble, *Cleland s.n.*, -x.1918 (AD); Broken Hill, *Pidgeon & Vickery* 3523, 20.viii.1939 (AD, NSW); 64 miles (40 km) [sic] NE Broken Hill, *Sikkes & Telford* 271, 28.x.1972 (AD, K); 3 km E Mt Wambo (21 km WSW Singleton), *Coveny* 5619, 17.ix.1974 (AD, NSW); Fowlers Gap near Broken Hill, *Jacobs* 2234, 7.x.1975 (AD, NSW).

VICTORIA: Junction of Murray Valley Hwy and park entrance road, Hattah-Kulkyne Natl Park, 4.5 km E Hattah, *Cameron* 8709, 30.viii.1977 (AD); 4 km SW Sunset Tank, *Corrick* 6616, 28.ix.1980 (AD, MEL).

SOUTH AUSTRALIA: near Heartbreak Well, c. 30 km W Everard Park Hstd, *Whibley 1192*, 16.ix.1963 (AD, E); c. 20 km NW Port Kenny, E of road to Streaky Bay, *Eichler 19475*, 13.x.1967 (AD, AK, PERTH); Saunders Ck gorge, *Blaylock 1314*, 26.vii.1969 (AD, KRA); near NW branch of Coopers Ck, S Coongie Lake, *Donner 5222*, 21.viii.1975 (AD, K, KRA, KW, MEL); Brookfield Conservation Park, c. 34 km E Truro, *Donner 7841*, 26.viii.1981, (AD, KRA).

8.3 subsp. *petiolaris* Randell, subsp. nov.

Subsp. × artemisioidi affinis sed foliis paucioribus (1-jugis) sine laminae, et petiolis costisque lateraliter compressis differt.

(Affinities with subsp. *× artemisioides* but has fewer leaflets (1 pair) without laminae, and the petiole and midrib laterally compressed.)

Holotype: 16 km SE Yuendumu, c. 270 km NE Alice Springs, *Randell 224A*, 31.viii.1967, AD.

Paratypes: (all same locality and date) *Randell 224/229, 224/287, 224/248, 224/283, 224/B*, all AD.

Synonyms

The type specimens of all the following names are derived, hybrid forms. For this reason, all the names they typify are reduced to synonymy.

1. *C. heteroloba* Lindley in Mitchell, *Three Expeditions into the interior of eastern Australia* 121 (1838).

Holotype: near Gol Gol Creek, New South Wales, *Mitchell 168*, 6.vi.1836, CGE, (photo), has horizontally flattened leaflets.

2. *C. platypoda* R. Br. in Sturt, *Expedition into Central Australia Vol.II, Botanical Appendix* 78 (1849).

Holotype: Murray Scrub, *Mrs. Grey No. 9*, 27.xi.1841, BM (photo) has narrow phyllodes and horizontally flattened leaflets.

3. *C. phyllodinea* R. Br. in Sturt, *Expedition into Central Australia Vol.II, Botanical Appendix* 78 (1849); Bailey, *Fl. Queensland* 460 (1900); Black, *Fl. S. Australia* edn 2: 431 (1948); Blackall and Grieve, *How to know Western Austral. Wildfl.* 1: 183 (1956); Symon, *Trans. Roy. Soc. S. Australia* 90: 115 (1966); Cunningham et al., *Pl. W. New South Wales* 381 (1981).

Lectotype: Inlet XII, South Coast in arenos steril versus montes. *R. Brown 4253*, (as *C. simplicifolia*), BM, (photo) lectotype here designated, as Inlet XII is near the base of Spencer's Gulf (Protologue: 'ad fundum sinus Spencer's Gulf'); *isolectotypes*: MEL, E, K. These have narrow phyllodes and no leaflets.

Syntype: I also have a photo of a sheet of three twigs in BM, one of which is labelled in an old hand 'Cassia phyllodinea R. Br. in Sturt Centr. Austr. Append. p.12, no locality' and annotated 'Type'.

4. *C. eremophila* Benth. var. *platypoda* (R. Br.) Benth., *Fl. Austral.* 2: 288 (1864); Bailey, *Fl. Queensland* 460 (1900); Black, *Fl. S. Australia* edn 2: 431 (1948); Cunningham et al., *Pl. W. New South Wales* 380 (1981).

5. *C. artemisioides* DC. var. *phyllodinea* (R. Br.) F. Muell., *Botanical Teachings* 31 (1877).

6. *C. artemisioides* DC. var. *eremophila* (A. Cunn. ex J.Vogel) F. Muell., *Botanical Teachings* 31 (1877).

The figures illustrating the last two names both show laterally compressed petioles. However, the second is a misapplication of the epithet 'eremophila' which was originally applied to forms with terete petioles (see under subsp. *× coriacea*).

7. *C. sturtii* R. Br. in Sturt var. *planipes* J. Black, *Trans. Roy. Soc. S. Australia* 48: 256 (1924).

Lectotype: Cordillo Downs, South Australia, *J.B. Cleland s.n.*, v.1924, AD!, lectotype here designated, has narrow phyllodes and horizontally flattened leaflets; *isolectotype*: K.

8. *C. desolata* F. Muell. var. *planipes* (J. Black) Symon, *Trans. Roy. Soc. S. Australia* 90: 114 (1966); in Jessop, *Fl. Central Australia* 112 (1981).

9. *C. nemophila* var. *platypoda* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 122 (1966); Willis, *Handb. Pl. Victoria* 247 (1972); Symon in Jessop, *Fl. Central Australia* 110 (1981).

Description

Leaflets in the type laterally compressed, 15-25 mm x 2-4 mm, in 1 pair; in derived forms often horizontally flattened, elliptic, 0-3 pairs, 10-25 mm x 1-8 mm; *indumentum* of sparse straight hairs or almost absent, or glabrous; *petiole* 20-60 mm long, laterally compressed, 2-8 mm broad, straight to upcurved. Diploids $n=14$ (Alice Springs), triploids $n=42/2$ (Kingoonya, S. Australia), tetraploids $n=28$ widespread (Randell 1970). Plate 15d.

Distribution and ecology

Widespread in a variety of habitats from rocky slopes to deep sand, over wide areas of all mainland states. Map 14, p. 226.

Notes

An extremely variable taxon across its wide distribution. Forms from the east of the range (previously *C. phyllodinea*) rarely have leaflets when mature, are waxy, and often hairy. Forms in Central Australia (where the diploid occurs) have laterally compressed leaflets, little wax, and no hairs.

In Western Australia, specimens from the eastern border resemble Central Australian types, while those from the western areas have shorter phyllodes, (rarely) laterally compressed leaflets, and thick scurfy wax.

In South Australia, specimens are green, glabrous, and with 1-2 pairs of horizontally flattened leaflets. Similar forms are widespread in western Queensland, New South Wales and Victoria.

Much of this variation is probably due to hybridization with other taxa — subsp. *filifolia*, × *coriacea* and × *artemisioides*. When an extensive collection of specimens is examined, intermediates can be found linking all the extremes of this range. For this reason, all forms have been placed together within one subspecies.

However it is possible to informally recognise some extremes, e.g. 'eastern form' for hairy types, 'central form' for those with laterally-compressed leaflets, 'western form' for those with scurfy wax, 'southern form' for those with horizontal leaflets. Hybrids and intermediates observed involve the following taxa: *S. artemisioides* subsp. × *artemisioides*, *filifolia*, × *coriacea*, *quadrifolia*, *alicia*, × *sturtii*(?), and *S. cardiosperma* subsp. *gawlerensis*.

The name chosen emphasises the importance of the petiole in defining the taxon.

Selection of specimens examined (c. 700 seen)

NORTHERN TERRITORY: Hermannsburg mission, *Lothian* 237, vii.1954 (AD, BM, M, USSR); 37 miles SE Yuendumu Native Settlement, *Lazarides* 6005, 16.xi.1956 (AD, CANB); c. 50 km W Henbury Stn, *Schodde* 455, 1.ix.1957 (AD, BM, CANB, K, P); c. 3 km E Ayers Rock, *Donner* 4378, 23.vii.1973 (AD, DNA, LASCH).

QUEENSLAND: near Mt Grey, between Merakee and Emmet, *Burbidge* 5507, 8.ix.1956 (AD, CANB); Nockatunga Pastoral Lease, *Hughes* s.n., 10.x.1975 (AD); dune 23 km N Birdsville, to W of Bedourie Road, *Grandison* 115, 2.ix.1979 (AD); Gravelpit Road 14 km N Birdsville, 2 km E Bedourie road, *Grandison* 136, s.d. (AD).

NEW SOUTH WALES: Wentworth — junction of Darling and Murray Rivers, *Cleland* s.n., 29.viii.1962 (AD); 63 miles (39 km) [sic] NE Broken Hill towards Mootwingee, *Sikkes & Telford* 259, 28.x.1972 (AD, AK, L); 41 miles (25 km) [sic] W Ivanhoe towards Menindee, *Sikkes & Telford* 385, 29.x.1972 (AD, L); c. 28 km ESE Whyjonta Bore, *Jackson* 2867, 12.v.1977 (AD, PE); at 90 km Wentworth post c. 11 km E S.A. border, c. 8.5 km NNE Cal Lal, *Barker* 4173, 9.ix.1980 (AD).

VICTORIA: roadside, Renmark to Mildura, *Cleland* s.n., 27.viii.1962 (AD); 25 km NE Cowangie, Sunset Country, *Corrick* 6399, 3.x.1979 (AD, MEL); c. 18 km NE Campbell Tank, main N-S road in Sunset Country, *Short* 1260, 28.ix.1981 (AD, MEL).

SOUTH AUSTRALIA: roadside, Wiltunga, *Copley* 785, 18.x.1966 (AD, RSA, TI); c. 40 km NE Minnipa, road to Yardea, Gawler Ranges, *Orchard* 2311, 27.ix.1969 (AD, BRI, KRA, MEL, OSHKOSH, WRSL); Durkin Outstation, c. 15 km W Mulgathing, *Weber* 2858, 28.ix.1971 (AD, CAI, CAL, MEL, SYD); c. 15 km W Murray Bridge, Kinchina Gorge, *Carrick* 3854, 2.x.1974 (AD, SYD); 1 mile from Birdsville Track on road to Coongie, *Donner* 5190, 17.viii.1975 (AD, BISH, BRI).

8.4 subsp. *circinnata* (Benth.) Randell, comb. nov.

Basionym: *Cassia circinnata* Benth. in Mitchell, *Journal of an Expedition into the interior of Tropical Australia* 284 (1848); Benth., *Fl. Austral.* 2: 286 (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Bailey, *Fl. Queensland* 460 (1900); Symon, *Trans. Roy. Soc. S. Australia* 90: 116 (1966). Cunningham et al., *Pl. W. New South Wales* 378 (1981); Symon in Jessop, *Fl. Central Australia* 111 (1981); Stanley & Ross, *Fl. South East Queensland* 391 (1983).

Lectotype: Camp at St. Georges Bridge on the Balonne River, 28°S, 148° 50'E, Qld, between November 5-9, 1846. *T.L. Mitchell* 418, K (photo), lectotype here chosen; *isolectotype*: MEL !

Description

Leaflets 1-3 pairs, obovate, usually absent at maturity; *indumentum* almost absent; *petioles* terete, 15-50 mm long, 1 mm diameter, rarely slightly flattened. Tetraploid $n=28$, one record (Randell 1970). Plate 15g-j.

Distribution and ecology

Scattered in arid shrublands of western Queensland and New South Wales. Map 15, p. 226.

Notes

Notable for its pod, which is flat, to 10 mm broad, and circinate forming 1-2 coils, with seed funicles attached to short inner edge. Some specimens may intergrade with subsp. *petiolaris*, eastern form.

Selection of specimens examined (c. 30 seen)

QUEENSLAND: Blackall, *McGillivray s.n.*, -viii.1928 (AD); 14 miles SE Blackall, *Smith and Everist* 892, 20.x.1940 (MEL); 10 miles N Augathella, *Jones* 1899, 16.iv.1961 (AD, CANB).

NEW SOUTH WALES: near Silverton, *Miss Irvine s.n.*, -viii.1889 (MEL); Gular, *Cleland s.n.*, 30.x.1911 (AD); 15 miles S Bourke towards Cobar, *Moore* 3868, 20.vii.1966 (MEL); 14 miles S Bourke, *Randell* 205, 3.vi.1967 (AD); 13 km W Cobar towards Wilcannia, *Sikkes & Telford* ASI88, 26.x.1972 (A, AD, L); 22 km S Bourke towards Cobar, *Rodd and Hardie* 4582, 29.iv.1985 (AD).

SOUTH AUSTRALIA: Cult. Waite Institute, *Southcott* 11650, 30.i.1959, (AD).

8.5 subsp. \times *coriacea* (Benth.) Randell, comb. nov.

Basionym: *Cassia sturtii* R. Br. var. *coriacea* Benth. *Fl. Austral.* 2: 288 (1864); Black, *Fl. S. Australia* edn 2, 2: 431 (1948).

Lectotype: Mt Flinders. NSW interior, Oxley's first Expedition. *Cunningham* 185, BM, sheet of 2 twigs, left shoot, (photo), lectotype here designated; *isolectotypes*: (i) sheet with one twig as above, others collected *Cl Fraser s.n.*, NSW, 1817, BM, (photo), (ii) sheet of two twigs labelled 'Base of Mt Flinders', Ex herb. Hook., K, (photo).

Syntype: Inlet XII, South Coast. *R. Brown* 4334, 1802, BM, sheet of 4 mixed twigs (photo), others cited by Benthham not seen.

Synonyms

1. *C. eremophila* A. Cunn. ex J. Vogel, *Gen. Cass. syn.* 47 (1837) as *C. nemophila*.

N.B. Cunningham's journal June 7th, 1817 states: 'I gathered flowering specimens of *Cassia* which is now the greatest ornament of these deserts and might be termed *eremophila*, from it being found in such places'. Thus the name '*nemophila*' can be regarded as a typographical error, as pointed out by Bentham (1864).

Neotype: (fide Symon 1966) *Cunningham 183*, BM, *isoneotype*: NSW ! as no specimens known to have been seen by Vogel have been located.

This epithet (and its variant *nemophila*) have long been misapplied to terete-leaflet forms, and for this reason I reduce it to synonymy as a *nomen confusum*.

2. *C. eremophila* (A. Cunn. ex J. Vogel) var. *coriacea* (Benth.) Symon, *Trans Roy. Soc. S. Australia* 90: 124 (1966) as *C. nemophila* var. *coriacea*; Willis, *Handb. Pl. Victoria* 246 (1972); Symon in Jessop, *Fl. Central Australia* 112 (1981); Cunningham et al., *Pl. W. New South Wales* 379 (1981).

Description

Leaflets (1-) 2-6 pairs, linear, elliptic, oblong or obovate, 7-15 (-30) mm x 2-6 mm; *indumentum* very sparse of soft appressed hairs; *petiole* terete 6-10 (-15) mm long. Triploids $n=42/2$ (restricted to Flinders Ranges, South Australia), tetraploids $n=28$ widespread, (Randell 1970). Plate 15b.

Distribution and ecology

Occurs in a very wide range of habitats from rocky hillsides to deep sands, over extensive southern inland areas of all mainland states. Map 16, p. 226.

Notes

In this taxon, cuticular wax occurs in thick sheets, and is sometimes glaucous.

An extremely variable taxon across its wide distribution, with individuals probably of hybrid derivation from *S. cardiosperma* subsp. *gawlerensis* and one or more of *S. artemisioides* subsp. \times *artemisioides*, *filifolia*, and *petiolaris* (Randell 1970). *S. cardiosperma* subsp. *gawlerensis* has numerous (8-10 pairs) small leaflets (3-6 mm long) and is restricted in distribution to Eyre Peninsular and Flinders Ranges of South Australia. Hence collections of subsp. \times *coriacea* from these areas also tend to have many smaller leaflets. They then resemble *S. cardiosperma* subsp. *stowardii*, but this does not occur in South Australia.

In northern South Australia, subsp. \times *coriacea* intergrades with *S. artemisioides* subsp. *alicia*, *quadrifolia* and *oligophylla*, all of which have fewer larger leaflets. Hence subsp. \times *coriacea* in this area also tends to have fewer larger leaflets, but there is a complete range of intermediates linking all four subspecies. The arbitrary separation developed is based on petiole length and leaflet size (see under subsp. *alicia* for details).

In western Queensland, New South Wales and Victoria, subsp. \times *coriacea* intergrades with subsp. *filifolia*, *petiolaris* and *zygophylla*. In southern South Australia, and Western Australia some forms are morphologically very similar to *S. artemisioides* subsp. *symonii* which is restricted to the NW of Western Australia.

S. artemisioides subsp. \times *coriacea* is believed to be always of hybrid derivation and is thus not a "natural" taxon, merely a convenient grouping of plants with similar morphology.

Selection of specimens examined (c. 600 seen)

WESTERN AUSTRALIA: Israelite Bay, *Brooke s.n.*, -x.1901 (AD); Dumbleyung, *Gardner 6501*, 10.viii.1942 (AD); 5 miles N Ravensthorpe, *George 287*, 12.ix.1959 (AD); 98 miles E Norseman, *Aplin 1747*, 5.ix.1962 (AD); 0.8 miles W Bandalup Ck., *Lullfitz 5494*, 6.viii.1966 (AD); Lake Cronin area, *Kessell 507*, 25.viii.1966 (AD); W Lake Grace, *Ashby 1938*, 7.ix.1966 (AD); 10 miles W Pt Culver, *Brooker 3703*, 30.x.1973 (AD); Coolgubbin c. 16 km S Neale's Junction, *Crisp 37*, 20.v.1974 (AD).

NORTHERN TERRITORY: Beddome Ra., *Latz 5241*, 2.v.1974 (AD, DNA, NY).

QUEENSLAND: Gravel Pit road, 14 km N Birdsville, 24 km E Bedourie road, *Grandison 137*, 4.ix.1979 (AD).

NEW SOUTH WALES: Broken Hill, *Morris 36*, -.vi.1920 (AD); Thackaringa Hills, E Broken Hill, *Reed s.n.*, 20.viii.1921 (AD); Sayers Lake, *Milthorpe 227*, 1.xi.1970 (AD); The Veldt, c. 130 km NNE Broken Hill, *Richley 1156*, 12.ix.1973 (AD); Fowlers Gap, N Broken Hill, *Jacobs 2274*, 9.x.1975 (AD, NSW); Gol Gol Forest between Sturt Hwy and Murray River, E Merbein, *Corrick 7400*, 1.ix.1981 (AD, MEL).

VICTORIA: beside Borung Hwy, 7 km WNW Litchfield, *Muir 5759*, 17.viii.1978 (AD, MEL); Far NW, c. 2 km SE Mt Crozier, *Corrick 6646*, 30.ix.1980 (AD, MEL); on Calder Hwy just N Redcliffs, *Corrick 7351*, 31.viii.1981 (AD, MEL); sandhill c. 10.5 km from Sunset Tank on road to Cowangie, *Short 1275*, 29.ix.1981 (AD, MEL).

SOUTH AUSTRALIA: c. 15 km S Bute on road to Adelaide, *Weber 50*, 12.x.1966 (AD, PH, SI); around Angorichina Hostel, c. 95 km NNE Hawker, *Kuchel 2441*, 1.ix.1967 (AD, BRI, C, CANB, CHR); Chowilla Stn, c. 24 km NNE Renmark, *Wheeler 439*, 17.ix.1967 (AD, LI, MEL, NBG); small hill just S Mt Gairdner c. 55 km WNW of Nonning, *Carrick 2371*, 29.ix.1969 (AD, BRI, KRA, MEL, WRSL); Emu, c. 250 km N Watson, *Brooks 15*, 14.ix.1972 (AD, DNA, NSW).

8.6 subsp. *zygophylla* (Benth.) Randell, comb. nov.

Basionym: *Cassia zygophylla* Benth. in Mitchell, *Journal of an Expedition into the interior of tropical Australia* 288 (1848).

Lectotype: No locality, *Mitchell 276*, 31.viii.1846, annotated 'C. *zygophylla* Benth. in Mitchell Trop. Aust., p. 288', K (photo), lectotype here designated; *isolectotype*: CGE (photo).

Syntype: No locality, *Mitchell 268*, 29.viii.1846, annotated 'Fl., 6 ft, sheltered gullies sub tropic New Holland' K (photo).

Synonyms

1. *C. canaliculata* R. Br. in Sturt, *Expedition into central Australia Vol. II, Botanical Appendix* 78 (1849).

Holotype: In the bed of the creeks of the Barrier Range, about 36 miles from the Darling, in lat. 32°S. *C. Sturt no. 2*, BM (photo). Note that this specimen has (slightly) flattened petioles, indicating that subsp. *petiolaris* occurs somewhere in its ancestry.

2. *C. eremophila* (A. Cunn. ex J. Vogel) var. *zygophylla* (Benth.) Benth. *Fl. Austral.* 2: 288, (1864); *Trans. Linn. Soc. London* 27: 556 (1871); Bailey, *Fl. Queensland* 461 (1900); Cunningham et al., *Pl. W. New South Wales* 380 (1981).

3. *C. nemophila* (A. Cunn. ex J. Vogel) var. *zygophylla* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 123 (1966).

Description

Leaflets 1-2 pairs, linear to narrow elliptic, 18-40 mm x 2-4 mm, 5-10 times as long as broad; *indumentum* absent; *petiole* 8-12 mm long.

Distribution and ecology

Occurs in a range of habitats from rocky hills to sandy slopes in inland southern Queensland, New South Wales and northern Victoria.

Notes

Cuticular wax is thick and glaucous in this taxon, which intergrades in various parts of its distribution with the following subspecies: in southern areas, subsp. \times *coriacea*; in the west, \times *sturtii*, and in the north-west subsp. *quadrifolia*. In addition, some forms of subsp. *petiolaris* are obviously derived from subsp. *zygophylla* as second parent.

Several collections differ in having 4 pairs of leaflets. eg. Warialda, *Rupp s.n.*, -.vii.1905, (NSW); roadside between Mullaly and Coonabarrabran, *Anon*, 7.iv.1968, (NSW). They may represent a variant of subsp. *zygophylla*, or a new subspecies not formally recognised here.

Selection of specimens examined (c. 200 seen)

QUEENSLAND: Otley's Stn, *Leichardt s.n.*, -v.1843 (NSW); Inglewood, *Boorman s.n.*, -ix.1910 (NSW); Chinchilla, *Shirley s.n.*, 29.x.1917 (NSW); 11 miles E Comet township, *Lazarides and Story 135*, 12.ix.1961 (NSW); 35 km SE Blackwater, *Henderson 1190*, 14.ix.1971 (NSW).

NEW SOUTH WALES: Gilgandra, *Cambage s.n.*, 14.x.1904 (NSW); Warialda, *Browne s.n.*, -viii.1933 (NSW); Wollar to Merriwa road, *Constable 4015*, 8.viii.1962 (NSW); Gurley nr Moree, *McBarron 15792*, 20.ix.1968 (NSW); 16 km SW Cowra, *McBarron 21019*, 29.ix.1973 (NSW).

VICTORIA: Werribee Gorge, *Williamson s.n.*, -x.1915 (NSW); Wycheproof, *Watts s.n.*, -x.1917 (NSW); Katunga, *Muir 4612*, 26.x.1967 (NSW).

8.7 subsp. *alicia* Randell, subsp. nov.

Subsp. oligophyllae affinis sed foliolis angustioribus, ellipticis et verticalibus dispositis pro paginis adaxialibus foliolorum oppositorum sibiparallelis et approximatis differt.

(Affinities with subsp. *oligophylla* but leaflets narrower, elliptical and placed vertically, such that the adaxial surfaces of opposite leaflets are parallel to each other and close together.).

Holotype: 6 miles SE of Alice Springs, *Randell 222/257*, 29.viii.1967, AD.

Paratypes: c. 3 km S of Alice Springs, *Randell 221/116*, *Randell 221/308*, *Randell 221/80*, 28.viii.1967, all AD.

Synonyms

This form has not previously been given a name. Epithets applied in error are:

1. *Cassia oligophylla* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 112 (1966) p.p. as for 'plants for which F. Mueller has used the unpublished varietal names *unijuga* and *monozyga*'.

2. *Cassia nemophila* var. *coriacea* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 124 (1966) p.p. as for specimens which 'connect with *C. oligophylla* in north central areas'.

Description

Leaflets 1-3 pairs, narrow elliptic and acute, or broader, oblanceolate and obtuse, 15-30 mm x 5-8 (-12) mm; *indumentum* sparse or absent, of soft appressed hairs; *petioles* 8-10 mm long. Diploid $n=14$, triploid $n=42/2$ and tetraploid $n=28$, all near Alice Springs, Northern Territory (Randell 1970). Plate 15f.

Distribution and ecology

Occupies a variety of habitats from rocky slopes to deep sand, in southern Northern Territory, southwestern Queensland, northwestern New South Wales, and northern South Australia. Map 17, p. 226.

Notes

In this taxon cuticular wax is thick and very glaucous, drying bluish or reddish.

Around Alice Springs there is a group of specimens having narrow elliptic, acute leaflets borne vertically and with adaxial surfaces of members of each pair in apposition. These form the core of the taxon, and the diploids are found among these specimens. However, a range of specimens with broader, longer leaflets are found near Alice Springs in hybrid swarms together with typical subsp. *alicia*, and are apparently derived from subsp. *alicia* as a parent. They are also designated as part of subsp. *alicia*.

In northern South Australia, herbarium specimens present a range of forms linking subsp. *oligophylla*, *quadrifolia*, \times *coriacea* and another resembling this large-leaflet form of subsp. *alicia*.

Arbitrary decisions have been made on the character combination used to separate the subspecies, but the result is not entirely satisfactory, viz.

Petiole robust, 5-15 mm long; leaflets glaucous or pubescent subsp. *oligophylla*
 Petiole slender, more than 11 mm long; leaflets not glaucous subsp. *quadrifolia*
 Petioles slender, less than 10 mm long; leaflets longer than 15 mm subsp. *alicia*
 Petioles slender, less than 10 mm long; leaflets less than 15 mm long subsp. \times *coriacea*

This separation leaves subsp. *alicia* comprising forms ranging from narrow-elliptic leaflets (to 5 mm broad) to broad-oblongate leaflets (to 12 mm broad). Further work may reveal the desirability of separating these forms as separate taxa.

The name of the subspecies is derived from its occurrence around Alice Springs.

Selection of specimens examined (c. 100 seen)

NORTHERN TERRITORY: 4 miles N Ooratippra Hstd, *Chippendale* 2503, 14.viii.1956 (AD, DNA); 14 miles SW Barrow Creek township, *Lazarides* 5811, 23.viii.1956 (AD, CANB); 13 miles SE Ringwood Hstd, *Chippendale* 4957, 25.ix.1958 (AD, DNA); 5 miles E Coniston Hstd, *Chippendale* 6432, 11.viii.1959 (AD, DNA); 5 miles W Stuart Hwy, Hamilton Downs road, *Maconochie* 116, 9.v.1967 (AD, DNA).

QUEENSLAND: Stony flats near Camp 23, c. 65 km NW Birdsville, Simpson Desert Expedition, *Crocker s.n.*, 4.vii.1939 (AD); 4 miles S Hughenden on Muttaborra road, *Burbidge* 5367, 9.v.1956 (AD, CANB); Urandangi to Camooweal road, c. 2.5 km N of middle turnoff to Barkly Downs Hstd, *Donner* 6129, 7.viii.1978 (AD, T, WKSL, Z); Gravel Pit road, 14 km N Birdsville, 2 km E Bedourie road, *Grandison* 132, 4.ix.1979 (AD).

NEW SOUTH WALES: The Veldt, c. 130 km NNE Broken Hill, *Richley* 1154, 12.ix.1974 (AD); W side McDonald Peak, c. 2.5 km ESE Binerah Downs, *Donner* 5666, 9.v.1977 (AD, F, G); 5 km E Tibooburra, *Donner* 5722, 11.v.1977 (AD).

SOUTH AUSTRALIA: c. 50 km E Copley, *Lothian* 2577, 27.ix.1963 (AD, PRE); c. 80 km NNE Tarcoola, *Lay* 48, 6.vii.1970 (AD, GZU, HL, LE); c. 120 km NNW Kingoonya, *Lay* 298, 5.vi.1971 (AD, GOET, NY); "Lake View", SW shore Lake Frome basin, *Callen* 29, 15.vi.1972 (AD, BAB).

8.8 subsp. *oligophylla* (F. Muell.) Randell. comb. nov.

Basionym: *Cassia oligophylla* F. Muell., *Fragm.* 3: 49 (1862); Bailey, *Fl. Queensland* 462 (1900); Symon, *Trans. Roy. Soc. S. Australia* 90: 112 (1966); Erickson et al., *Fl. and Pl. of Western Australia* 209 (1979); Cunningham et al., *Pl. W. New South Wales* 380 (1981); Symon in Jessop, *Fl. Central Australia* 109 (1981).

Lectotype: In Sandy Places at Nichol Bay, W.A., leg. *P. Walcott s.n.*, sub expeditione Francisci Gregorii, K (photo), lectotype here designated; *isolectotype*: MEL! (photo) is fragmentary.

Synonym

C. oligophylla F. Muell. var. *sericea* Symon, *Trans. Roy. Soc. S. Australia* 90: 113 (1966).

Holotype: The Granites, N.T., *J.B. Cleland s.n.*, 14.viii.1936, AD! (photo).

Description

Leaflets 2-3 pairs, obovate to ovate, 10-30 mm x 10-20 mm, usually quite flat; *indumentum* sparse to dense, of erect or silky appressed hairs; *petiole* 6-10 mm long, robust, 1.5 mm diameter. Triploid $n=42/2$, restricted (Marree, South Australia); tetraploid $n=28$ widespread (Randell 1970). Plate 15a.

Distribution and ecology

Occurs in a variety of habitats from rocky hillsides to deep sand, over wide areas of inland Western Australia, Northern Territory, Queensland, and South Australia. Only one collection is known from New South Wales. Map 18, p. 226.

Notes

In this taxon, cuticular wax is sometimes glaucous.

As here defined subsp. *oligophylla* does not show much variability, but there is considerable intergradation with other taxa. An intractable problem occurs in northern areas of South Australia where intergradation occurs between subsp. \times *coriacea*, *alicia*, and *oligophylla*. Arbitrary separations are made on the following character combinations:

Petioles robust (1-2 mm diam.); leaflets 20-40 mm long subsp. *oligophylla*
 Petioles slender (<1 mm diam.); leaflets shorter than 15 mm subsp. \times *coriacea*
 Petioles slender (<1 mm diam.); leaflets 2-3 pairs, longer than 16 mm subsp. *alicia*

This is not entirely satisfactory (see further discussion under subsp. *alicia*). Besides this intergradation, intermediates are known between subsp. *oligophylla* and subsp. *helmsii*, *quadrifolia*, *filifolia* and \times *sturtii*. In Western Australia a few specimens show larger, more persistent floral bracts.

Population studies in northern South Australia would clarify relationships between subsp. *oligophylla*, *alicia* and \times *coriacea*. Cytological studies might locate a diploid race in the Hamersley Ranges of Western Australia, as it is here that the most uniform specimens are located.

Selection of specimens examined (c. 300 seen)

WESTERN AUSTRALIA: 9 miles ESE Calwinyardah Stn, Kimberleys, *Lazarides* 6506, 5.ix.1959 (AD, CANB); c. 400 km N Giles, SW Lake Mackay (on W.A.-N.T. border), *Kuchel* 168, 2.viii.1962 (AD, SI); c. 30 km N Gascoyne R., Onslow rd, *Ashby* 1874, 10.viii.1966 (AD, F, G, GOET); Cape Ra. Natl Park, c. 11km WNW Exmouth to Carnarvon rd, *Jackson* 3062, 29.viii.1977 (AD, PRE, UMO); plains within Hamersley Ra., Paraburdoo, *Boomsma* 547, 21.vi.1980 (AD).

NORTHERN TERRITORY: 33 miles NW Wauchope township, *Lazarides* 5861, 27.viii.1956 (AD, CANB); base of Ayers Rock, *Hill & Lothian* 737, 2.vii.1958 (AD, MEL, NSW, NY); Mt Davidson, Tanami Sanctuary, *Maconochie* 1010, 23.v.1970 (AD, DNA); 25 miles N of Barkly Hwy on Borroloola rd, *Henry* 180, 11.vi.1971 (AD, DNA).

QUEENSLAND: 20 miles NE Dajarra township, *Blake* 4036, 3.ix.1953 (AD, CANB); Stuarts Ck, *Pastoral Board S.A. s.n.*, 17.ix.1966 (AD); Simpson Desert, near Lake Munoonie, *Crisp* 192, -vi.1974 (AD).

NEW SOUTH WALES: Purnanga, *Richley* 1383, 17.ii.1974 (NSW), only collection seen.

SOUTH AUSTRALIA: road from Arrabury Hstd to Innamincka, *Donner* 5369, 28.viii.1975 (AD, K, W); Krewinkel Hill, c. 75 km directly NW Mt Lindsay, *Stove* 362B, 2.ix.1978 (AD); W end Gawler Ranges, Kokatha, *Bates* 210, -vii.1978 (AD, DNA); river chasm, 61 km E Dalhousie Springs, *Lothian* 1904, 12.viii.1963 (AD, BRI).

8.9 subsp. *helmsii* (Symon) Randell, comb. nov.

Basionym: *Cassia helmsii* Symon in Eichler, *Suppl., J. Black's Flora* 180 (1965); Symon, *Trans. Roy. Soc. S. Australia* 90: 110 (1966); Erickson et al., *Fl. and Pl. Western Australia* 210 (1979); Symon in Jessop, *Fl. Central Australia* 109 (1981); Cunningham et al., *Pl. W. New South Wales* 380 (1981).

Holotype: 5 miles E of Coniston Homestead, N.T., *Chippendale* 6428, 11.viii.1959, AD! (photo); *isotypes*: DNA, NSW.

Synonyms

1. *C. sturtii* R. Br. var. *tomentosa* Benth., *Fl. Austral.* 2: 289 (1864).

Lectotype: Mt Murchison NSW, *J. Dallachy s.n.*, MEL! lectotype here designated; *isolectotype*: K (photo).

2. *C. sturtii* R. Br. var. *involuta* J. Black, *Trans. Roy. Soc. S. Australia* 47: 370 (1923); J. Black, *Fl. S. Australia* edn 1, 2: 293 (1924).

Holotype: Birkgate Range, far NW of S.A., Camp 15, *R. Helms s.n.*, 6.vii.1891, AD!; *isotypes*: NSW!, K, MEL.

3. *C. desolata* F. Muell. var. *involutrata* (J. Black) J. Black, *Fl. S. Australia* edn 2, 2: 430 (1948); Blackall and Grieve, *How to know Western Austral. Wildfl.* 1: 183 (1954).

Description

Leaflets 2-4 pairs, obovate, woolly-hairy, 10-25 mm x 6-12 mm, edges recurved; indumentum of thick woolly hairs; petiole to 15 mm long. Triploids $n=42/2$ restricted (Flinders Ranges, South Australia), tetraploids $n=28$ widespread. Plate 15e.

Distribution and ecology

Occurs in a variety of habitats from rocky slopes to deep sands in inland areas of Western Australia, Northern Territory, Queensland, New South Wales and South Australia. Map 19, p. 226.

Notes

In this taxon cuticular wax is thick below the hairs, and tends to become dark and discoloured at maturity.

Subsp. *helmsii* in itself does not show much variability, but there is considerable intergradation with other taxa. Subsp. \times *sturtii* is presumably of hybrid derivation from subsp. *helmsii* as one parent, and there are certainly many specimens intermediate between the two taxa. An arbitrary separation may usually be made between specimens with elliptic, incurved leaflets (subsp. \times *sturtii*) and those with obovate recurved leaflets (subsp. *helmsii*) though even this simple correlation sometimes breaks down.

Hybrid swarms have also been observed linking subsp. *helmsii* and *oligophylla*, the latter also with obovate leaflets but silky hairs. Again intermediates occur, and an arbitrary separation may usually be made between those with recurved leaflets and fine petioles (subsp. *helmsii*) and those with flat leaflets and robust petioles (subsp. *oligophylla*). Intermediate forms are known to exist linking subsp. *helmsii* with subspp. \times *artemisioides*, *filifolia*, \times *sturtii*, *quadrifolia* and *alicia*.

Cytological studies might locate a diploid race in the Hamersley Ranges of Western Australia, as it is here that many uniform specimens are found.

Selection of specimens examined (c. 250 seen)

WESTERN AUSTRALIA: 5 miles NW Murchison Downs, Ereman Prov., *Speck* 1307, 28.viii.1958 (AD, CANB); Giles settlement, Rawlinson Ra., c. 70 km W Northern Territory border, *Hill* 1374, 29.vii.1964 (AD, BM); Coolgubbin, c. 16 km S Neales Junction, *Crisp* 48, 21.v.1974 (AD); 23 km NE Eeraheedy Hstd, *Toelken* 6273, 17.ix.1979 (AD, NSW).

NORTHERN TERRITORY: Horseshoe Bend, c. 170 km S Alice Springs, *Ising* 3133, 24.viii.1931 (AD); Ayers Rock, NE side near base, *Donner* 4636, 23.viii.1973 (AD, DNA); NW Simpson Desert, *Henry* 1005, 1.x.1973 (AD, DNA, MO); Tanami Desert, c. 9 km NNW Ferdies Bore, c. 40 km WNW Mongrel Downs Hstd, *Donner* 6306, 19.viii.1978 (AD, OSA, OSHKOSH, P).

QUEENSLAND: 7 miles SE Gypsy Plains Stn, *Speck* 4794, 6.viii.1954 (AD, CANB); Simpson Desert, *Crisp* 185, -vii.1974 (AD); Simpson Desert, stony rise near Lake Muncoonie, *Crisp* 191, -vii.1974 (AD); Nockatunga Pastoral Lease, *Hughes*, s.n., 10.x.1975 (AD).

NEW SOUTH WALES: Umberumberka, c. 25 km NW Broken Hill, *Ising* s.n., 14.x.1921 (AD); near Milparinka, c. 6 km SW Mt Shannon, *Jackson* 2812, 6.v.1977 (AD, ZT).

SOUTH AUSTRALIA: Mt Norwest Station, *Hill* 63, 16.vii.1955 (AD); near Cooper Ck crossing on rise about 2 miles above crossing, *Lothian* 2027, 23.ix.1956 (AD, Shallert, SI, US); c. 5 miles WNW Cordillo Downs Hstd, *Lothian & Francis* 645, 29.viii.1960 (AD, E); Mt Fink, c. 55 km SW Tarcoola, *Bates* 265, -viii.1978 (AD, DNA); between Deering Hills and Mann Ranges, c. 18 km NE Mt Cooperinna, *Barker* 3401, 8.ix.1978 (AD, DNA).

8.10 subsp. \times *sturtii* (R. Br.) Randell, comb. nov.

Basionym: *Cassia sturtii* R. Br. in Sturt, *Expedition into central Australia Vol. II, Botanical Appendix* 77 (1849); Bailey, *Fl. Queensland* 461 (1900); J. Black, *Fl. S. Australia* edn 2, 2: 431 (1948); Blackall & Grieve, *How to know Western Austral. Wildfl.* 1: 183 (1954); Symon, *Trans. Roy. Soc. S. Australia* 90: 113 (1966); in Jessop, *Fl. Central Australia* 111 (1981); Cunningham et al., *Pl. W. New South Wales* 382 (1981).

Holotype: In sandy brushes of the Western Interior, Sturt 25, BM (photo).

Synonym

C. desolata F. Muell., *Linnaea* 25: 389 (1853); Bailey, *Fl. Queensland* 462 (1900); J. Black, *Fl. South Australia* edn 2, 2: 430 (1948); Symon, *Trans. Roy. Soc. S. Australia* 90: 113 (1966); in Jessop, *Fl. Central Australia* 110 (1981); Cunningham et al., *Pl. W. New South Wales* 378 (1981).

Holotype: In sunny undulating, dry clayey soil between Arkaba and Wulpina (Wilpina) Flinders Ranges SA, F. Mueller s.n., MEL! (photo).



20



21



22



23

Map 20. *S. artemisioides* subsp. \times *sturtii*. Map 21. *S. artemisioides* subsp. *quadrifolia*. Map 22. *S. artemisioides* subsp. *glaucifolia*. Map 23. *S. artemisioides* subsp. *stricta*.

Description

Leaflets 2-8 pairs, linear to elliptic, concave, 15-25 mm x 2-8 mm; *indumentum* of sparse to dense woolly (rarely straight) hairs; *petioles* 6-10 mm long. Triploids $n=42/2$ restricted (Alice Springs, N.T.); *tetraploids* $n=28$, widespread (Randell 1970). Plate 16f.

Distribution and ecology

Occurs in a variety of habitats from rocky hillsides to deep sand over wide areas of inland Western Australia, Northern Territory, Queensland, New South Wales and South Australia. Map 20, p. 238.

Notes

Specimens in this taxon are believed to be of hybrid origin, from crosses between subsp. *helmsii* or *oligophylla* on the one hand, and subsp. \times *artemisioides* or *filifolia* on the other. Thus in different populations, subsp. \times *sturtii* has different combinations of parental genomes, and it is not surprising that the taxon here defined comprises much variability. It also follows that it is not expected that a diploid race will ever be discovered.

It is not generally possible to describe geographical trends in variation, as the variation occurs between populations, rather than between areas. As stated in the description, there is considerable difference in the form, and number of leaflets, and in their size. However, they are united by their elliptic shape, and the generally dense woolly indumentum. Intermediates exist with subsp. *helmsii* (see discussion there), and with subsp. \times *artemisioides*. In the latter case an arbitrary separation may usually be made with those specimens with obviously flattened leaflets placed in subsp. \times *sturtii*.

Intermediates have also been observed with the following taxa: *S. artemisioides* subsp. \times *artemisioides*, *filifolia*, *helmsii*, *oligophylla*, *petiolaris*, \times *coriacea* and *quadrifolia*.

Population studies on the form *C. desolata* var. *planipes* (J. Black) Symon (here transferred to subsp. *petiolaris*), are needed to clarify its relationships to several subspecies of *S. artemisioides*.

Selection of specimens examined (c. 300 seen)

WESTERN AUSTRALIA: Gap in Rawlinson Ra., c. 6.5 km N Giles, *Hill and Lothian* 867, 8.vii.1958 (AD); Yaringa North, Shark Bay, *Galbraith* s.n., 10.viii.1964 (AD); Yalgoo, c. 150 km NE Mingenew, *Ashby* 2979, 3.ix.1969 (AD, OSAKA, OSHKOSH); Mulyajingle Peak, c. 15 km SW Byro, *Weber* 5061, 11.x.1975 (AD, NBG); 14 km SE Edagee Hstd turnoff, c. 90 km SE Carnarvon, *Jackson* 3104, 1.ix.1977 (AD, BRI, COLO).

NORTHERN TERRITORY: Cockatoo Ck, c. 240 km NW Alice Springs, *Cleland* s.n., 18.viii.1931 (AD); Woodgreen Stn c. 160 km NE Alice Springs, *Lothian* 525, 1954 (AD); Mt Solitaire, Alice Springs to Hamilton Downs rd, c. 31 km WNW Alice Springs, *Orchard* 716, 5.vii.1968 (AD, COLO, DNA, H, M, Tripoli); Central Mt Stuart, c. 200 km N Alice Springs, *Weber* 1011, 18.vii.1968 (AD, C, K, M); 6 km E Hawk's Nest Well, Welbourne Hill Stn, *Henshall* 3013, 19.v.1980 (AD, CBG, DNA); Chambers Pillar, *Wollaston* s.n., 27.v.1981 (AD).

QUEENSLAND: SW Nappermerrie, *Jackson* 419, 12.viii.1962 (AD).

NEW SOUTH WALES: Broken Hill, *Morris* 277, 20.vii.1920 (AD); 40 km N Tibooburra, Wittabrenna Ck flood plain, *Conrick* 641, 5.ix.1981 (AD).

SOUTH AUSTRALIA: De Rose Hill, on main road between Coober Pedy and Alice Springs, *Caulfield & Hill* s.n., -vii.1953 (AD); Lake Harry, Clayton R. crossing, *Hill* 296, 29.vii.1955 (AD, M); 1-3 miles S of Wertaaloon Hstd, W Lake Frome, *Weston* 1609, 1.viii.1965 (AD, UC); c. 15 km S Ooldea, *Lothian* 5442, 11.vii.1972 (AD, BRI); NE Yarloo, *Brown* s.n., 28.ix.1978 (AD); E end, Yudnamutana Gorge, N Flinders Ranges, *Copley* 452, 22.vii.1980 (AD).

8.11 subsp. *quadrifolia* Randell, subsp. nov.

Subsp. \times sturtii affinis sed foliolis paucioribus (2-jugis), pilis rectis sparsis et petiolis longioribus (plus quam 1.5 cm) differt. (Affinities with subsp. \times *sturtii* but leaflets fewer (2 pairs), hairs straight and sparse, and petiole longer (more than 1.5 cm)).

Holotype: 9 km N of Watson on West side of Maralinga road intersection, *Lothian* 5516, 14.vii.1972, AD; *isotype*: F.

Paratypes: Watson — Maralinga, *Pastoral Board s.n.*, 1.vii.1967, 2 sheets, AD.

Synonym

C. oligophylla sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 112 (1966) as for "specimens with narrower leaflets may connect the species with *C. nemophila* var. *zygophylla*."

Description

Leaflets 2 rarely 3 pairs, narrow elliptic, 20-50 mm x 2-10 mm; *indumentum* of sparse erect or appressed hairs; *petioles* terete 15-25 mm long. Plate 16e.

Distribution and ecology

Occurs in a variety of habitats from rocky hillsides to deep sand in inland Northern Territory, Queensland, New South Wales, and South Australia. Map 21, p. 238.

Notes

This taxon has thick cuticular wax under the hairs, but is never glaucous. It has previously been confused with *C. zygophylla* Benth., but the type of this (K, photo) has one pair of leaflets and shorter petioles, and represents a group which is usually glabrous.

Within the taxon variability is limited. However, some intergradation with other taxa has been observed. Intermediates with subsp. *filifolia* have narrower leaflets than most specimens (2-3 mm broad), and intermediates with subsp. *alicia* have leaflets with surfaces tending to be glaucous (see under subsp. *alicia*). In the latter case, an arbitrary separation is made on the length of the petiole, those with petioles longer than 15 mm being called subsp. *quadrifolia*. Intermediates with subsp. *× sturtii* may also occur, and these may usually be separated by the long petioles of subsp. *quadrifolia*.

The name derives from the usual occurrence of 4 leaflets per leaf.

Selection of specimens examined (c. 150 seen)

NORTHERN TERRITORY: 14 miles E MacDonald Downs, c. 175 km NE Alice Springs, *Cleland s.n.*, 24.viii.1930 (AD); Haast Ra., c. 210 km WNW Alice Springs, *Lothian* 272, 1954 (AD); Nawietooma Hstd, *Maconochie* 47, 4.iv.1967 (AD, DNA); Hamilton Downs rd, 20 miles NW Alice Springs, *Nelson* 1719, 8.viii.1968 (AD, DNA); 80 miles S Alice Springs near Finke R., *Driver* M312, 15.viii.1972 (AD, DNA); NW Simpson Desert, *Henry* 974, 30.ix.1973 (AD, CANB, DNA).

QUEENSLAND: Carnarvon, c. 65 km SSW Springsure, *Jordan s.n.*, -viii.1953 (AD); 18 miles ESE Rolleston township, *Lazarides & Story* 20, 30.viii.1961 (AD, CANB); 11 miles E Comet township, *Lazarides & Story* 135, 12.ix.1961 (AD, CANB); 2.5 miles NW Mt Coolon township, *Adams* 1107, 17.vii.1964 (AD, CANB); Bedourie rd, 23 km N Birdsville, *Grandison* 93, 31.viii.1978 (AD).

SOUTH AUSTRALIA: Mt Eba, c. 50 km E Tarcoola, *Cleland s.n.*, 28.vi.1962 (AD); c. 40 km W Mabel Ck woolshed along Tallaringa Well track, *Lothian* 2788, 8.v.1964 (AD, DNA, MEL, NSW); c. 8 km E Frome Downs Stn, *Weber* 2052, 21.vii.1971 (AD, BRI, KRA, MEL, RSA, W, WRSL); 29 km SE Pedirka rail siding on track to Macumba Stn, *Lazarides* 8270, 5.v.1977 (AD, CANB); NNE Nent Oura Research Stn, 8 km ENE Mt Fitton ruin, *Mollenmans* 1106, 7.x.1981 (AD).

8.12 subsp. *glaucifolia* Randell, subsp. nov.

Subsp. quadrifoliae affinis sed foliis pluribus (3-5-jugis) glabris ceraceis glaucis differt.

(Affinities with subsp. *quadrifolia* but leaflets more numerous (3-5 pairs), glabrous, waxy and glaucous.)

Holotype: Giles Settlement, in Rawlinson Range, c. 70 km W of Northern Territory Border, *R. Hill* 1366, 29.vii.1964, AD; *isotypes*: COLO, CHR.

Paratypes: 112 km N of Kumarina roadhouse, on Great Northern Hwy to Newman, *Jackson* 2903, 17.viii.1977, AD, GEOT, GZU; East of Bonython Range, *Butler* 159, -.iv.1967, PERTH.

Description

Leaflets 2-4 pairs, elliptic, 10-26 mm x 3-8 mm, acute; *indumentum* of sparse soft and appressed hairs; *petioles* 10-15 mm long, terete. Plate 16d.

Distribution

Occurs in a wide range of habitats in central arid areas of Western Australia and Northern Territory. Map 22, p. 238.

Notes

This taxon in which cuticular wax is thick and always glaucous, was previously confused with *S. glutinosa* subsp. *glutinosa*, from which it differs in its lack of glutinous epidermis and its smaller flowers.

Specimens within this taxon show some variation e.g. in the length of leaflets. The type material has leaflets considerably longer than those of specimens from further west. The type material also has an open appearance due to the spreading character of the leaflets, which is less obvious in western material. However, the specimens are united by the acute elliptic leaflets, and the obvious glaucous nature of the surface. Some forms of subsp. \times *coriacea* closely resemble subsp. *glaucifolia* in leaflet morphology. However, subsp. *glaucifolia* has not been recorded in hybrid populations, while subsp. \times *coriacea* is known only from such hybrid swarms. In addition, these glaucous forms of subsp. \times *coriacea* usually have leaflets obtuse at the apex, not acute as in subsp. *glaucifolia*.

Another problem involves the separation of subsp. *glaucifolia* and subsp. *symonii*, in which diploids occur in the Kimberley Ranges, while derived forms reach the Hamersley Ranges and may thus be almost sympatric with subsp. *glaucifolia*. Once again, the leaflet apex in subsp. *symonii* is usually rounded or obtuse, thus allowing separation from subsp. *glaucifolia*, and specimens of subsp. *symonii* usually have leaflets obovate in outline (see discussion under subsp. *symonii*).

Observations on population structure would clarify some remaining problems on the relationships between subspp. *glaucifolia*, *alicia*, and *quadrifolia*.

The name chosen reflects the conspicuous glaucous quality of the leaflets.

Selection of specimens examined (c. 50 seen)

WESTERN AUSTRALIA: Glenorn Stn, Malcolm, *Burbidge* E174, -.viii.1938 (PERTH); between Oakover R. and Canning Stock Route, *Casey* s.n., 1954 (PERTH); 16 miles SW Nannine, *Speck* 727, 8.ix.1957 (AD, CANB); Giles area around settlement, *Hill* 897, 8.vii.1958 (AD, K, MEL); 14 miles S the W end Hopkins Lake, *Symon* 2367, 2.viii.1962 (AD); 27 miles W Wiluna, *Aplin* 2438, 22.viii.1963 (PERTH); Warburton, *de Graaf* s.n., 22.x.1963 (PERTH); Blythe Ck c. 115 km NNW Warburton Mission, *Ashby* s.n., 2-14.viii.1970 (AD); ; rocky hill c. 2 km N Leonora, *Weber* 4769, 19.ix.1975 (AD, KW); 50 km N Mingah Springs, *Mitchell* 282, 16.x.1976 (PERTH); 55 km E Meekatharra, on Wiluna Road, *Beaughtole* 59389 and *Erroy* 3089, 12.ix.1978 (PERTH); Teutonic Admin. Site, *Cumming* 1390, 20.ix.1981 (PERTH).

NORTHERN TERRITORY: 15 km W Angas Downs Stn, c. 230 km SW Alice Springs, *Schodde* 462, 1.ix.1957 (AD, CANB, K); road to Mulga Park Hstd, c. 120 km W Cavenagh Hstd, *Donner* 4309, 21.viii.1973 (AD, DNA, NSW).

8.13 subsp. **stricta** Randell, subsp. nov.

Subsp. × artemisioidi affinis sed foliolis linearibus glabris et ferrugineo-glaucis differt.

(Affinities with subsp. × *artemisioides* but leaflets linear, glabrous, and reddish glaucous.)

Holotype: Great Northern Highway, 22.5 km N of Roy Hill, Fortescue District, Western Australia, Carr 4696 and Beaglehole 48474, PERTH.

Description

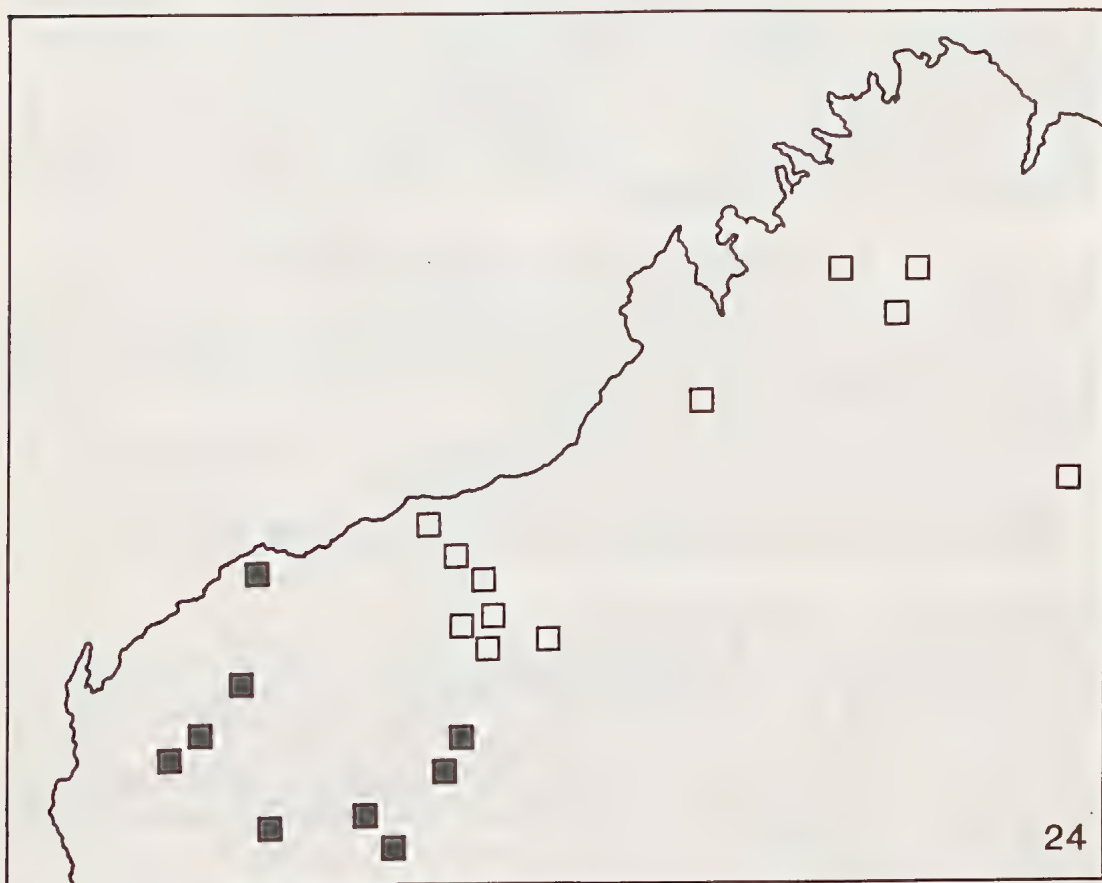
Leaflets 3-5 pairs elongate, linear, 10-25 mm x 1-2 mm, length always more than 15x breadth; *indumentum absent*; *petiole* 6-10 mm long. Plate 16c.

Distribution

Restricted to south western areas of Western Australia. Map 23, p. 238.

Notes

This taxon, with its thick glaucous reddish cuticular wax, was previously confused with *S. glutinosa* subsp. *chatelainiana*, but is obviously separated by its smaller flowers. Vegetatively it resembles *S. cardiosperma* subsp. *stowardii*, but this always has shorter petioles (1-5 mm long) and even smaller flowers.



Map 24. □ *S. artemisioides* subsp. *symonii*. ■ *S. artemisioides* subsp. *hamersleyensis*.

Selection of specimens examined (c. 100 seen)

WESTERN AUSTRALIA: 30 miles from Meekatharra, *Gardner & Blackall 221*, 18.vii.1931 (PERTH); Barlee Ra., Henry R., *Royce 6510*, 17.viii.1961 (PERTH); between Boolgeeda and Mt Turner, Ashburton, *Blockley 342*, 1.viii.1966 (PERTH); Gary Highway (between Gunbarrel Hwy and Windy Corner), *Beard 4826*, 23.vii.1967 (PERTH); Beacon, *Kuhl s.n.*, -.x.1967 (PERTH); Mt Augustus Stn, *Wilcox 58*, -.viii.1969 (PERTH); Port Hedland area, *Stone A*, -.viii.1972 (PERTH); 3 km W Horrigan's Pool on Turrel Creek Stn, *Mitchell 76/70*, 19.vi.1976 (PERTH); 50 km N Ashburton Downs Hstd, *Mitchell 442*, 5.vii.1977 (PERTH); Wiluna - Meekatharra road, c. 10 km NE Killara Hstd turnoff, *Jackson 2888*, 16.viii.1977 (AD); Little Sandy Desert, *Mitchell 677*, 25.iv.1979 (DNA, PERTH); Puri Bardu Ck, Paraburdoo, *Boomsma 591*, 26.vi.1980 (AD); Newman area, *Walker 149*, 5.viii.1980 (PERTH).

8.14 subsp. *symonii* Randell, subsp. nov.

Subsp. hamersleyensi affinis sed petiolis brevioribus (3-8 mm longis), foliolis aggregatis (rachide inter pares successiva foliolorum 1-8 mm longa) et pedunculis brevioribus (10-30 mm longis) differt.

(Affinities with subsp. *hamersleyensis* but petioles shorter (3-8 mm long), leaflets crowded (with rachis between successive pairs 1-8 mm long), and peduncles shorter (10-30 mm long)).

Holotype: Road to Mt House, by Precipice Range, King Leopold Range, (c. 300 km NE of Broome), B.A. Barlow 1227, 25.vi.1967, AD.

Description

Leaflets 2-3 pairs, obovate, 8-13 (-20) mm x 5-7 mm, apex obtuse or rounded; *indumentum* of sparse to dense soft and appressed hairs; *petioles* short, 3-8 mm long, leaflets crowded, 1-8 mm apart. Diploid $n=14$ (holotype), from Kimberley area (Randell 1970). Plate 16b.

Distribution

Restricted to upland areas of northwest Western Australia. Map 24.

Notes

In this taxon, the cuticular wax is thick and glaucous.

Forms from Hamersley Range have larger leaflets and may intergrade with subsp. *glaucifolia*, from which they are separated by the obtuse leaflet apex, shorter petiole and crowded leaflets of subsp. *symonii*. Population studies and cytological examinations are needed here to clarify these relationships.

Morphologically some specimens are almost identical with some forms of subsp. \times *coriacea*, with which they are certainly not sympatric. Subsp. *symonii* is restricted to northern and western areas of Western Australia, while the corresponding forms of subsp. \times *coriacea* occur in hybrid populations on Eyre Peninsula of South Australia.

The name commemorates Mr D.E. Symon, who last revised the group in Australia in 1966.

Specimens examined

WESTERN AUSTRALIA: Base of Mt Brennan, *Fitzgerald 1188*, -.vi.1905 (PERTH); Nullagine Road, S of Mt Edgar Stn, *Burbidge 1164*, 12.vi.1941 (PERTH); Warralong Siding, Marble Bar, *Burbidge 1226*, 20.vi.1941 (PERTH); c. 41 km from Roebourne turnoff on Wittenoom Road, at head of gorge, *Ashby 4170*, 5.viii.1971 (AD, ODU); 4 km E Fitzroy R., c. 178 km WNW Halls Creek, *Beaulehole 53754*, 25.vi.1976 (PERTH); Edgar Ranges, *Kenneally 5542*, 9.viii.1976 (PERTH); Fig Tree Soak, 10 km SW into Yampire Gorge from Wittenoom, Roy Hill road, *Jackson 2914*, 18.viii.1977 (AD, TAI, TI); 22.1 km from Shay Gap on the Goldsworthy road, *Chinnock 3857*, 2.ix.1977 (AD, BAB); gravelly creeks, Bee Hill Mine area, *Davis 69*, 1.vi.1979 (PERTH); plains near Paraburdoo, *Boomsma 558*, 21.vi.1980 (AD); 270 km NE Port Hedland, *Conrick 1037*, 13.viii.1982 (AD).

8.15 subsp. **hamersleyensis** (Symon) Randell, comb. nov.

Basionym: *Cassia hamersleyensis* Symon, *Trans. Roy. Soc. S. Australia* 90: 108 (1966); Beard, *Descr. Cat. Western Austral. Pl.* 62 (1970).

Holotype: The flood plain of Wild Duck Creek, between Brockman and Mt Pyrtton in the Hamersley Ranges, W.A., *M.M. Cole* 5019, 1963, PERTH!; *isotype:* K.

Description

Leaflets 2-4 pairs, oval to obovate, 5-12 mm x 4-12 mm; *indumentum* sparse, of soft appressed hairs; *petioles* 3-6 mm long. Plate 16a.

Distribution

Very restricted in central Western Australia. Map 24.

Notes

In this taxon, which is apparently always low-growing, cuticular was is glaucous and in thick sheets, while peduncles (to 90 mm long), are consistently longer than leaves.

Specimens examined are morphologically very uniform, suggesting that this could well be a relict diploid taxon.

Specimens examined

WESTERN AUSTRALIA: Marra-Mamba to Duck Ck, Hamersley Ra., *Blockley* 284, 23.vi.1966 (PERTH); Mt Augustus, *Wilcox s.n.*, 7.vii.1970 (PERTH); near Mulgul, *Ashby* 3352, 8.ix.1970 (AD, PERTH); Karratha, near Dampier, *Jurat s.n.*, -vi.1974 (PERTH); 60 km N Mt Vernon Hstd, Upper Ashburton, *Mitchell* 250, -xi.1976 (PERTH); 100 km S Newman along Great Northern Hway, *Mitchell* 342, 31.v.1977 (PERTH); 40 km NE Ashburton Downs Hstd, *Mitchell* 441, 5.vii.1977 (PERTH); Newman Area, *Walker* 119, 31.vii.1980 (PERTH); Mordabia paddock, Towers Stn, *Cranfield* 1795, 6.viii.1981 (PERTH); Salt Windmill paddock, Towers Stn, *Cranfield* 1810, 7.viii.1981 (PERTH).

9. ***S. cardiosperma*** (F. Muell.) Randell, comb. nov.

Basionym: *Cassia cardiosperma* F. Muell., *Fragm.* 10: 50 (1876); Beard, *Descr. Cat. Western Austral. Pl. edn 2*, 62 (1970).

Holotype: In eremo virgultosa inter Victoria Spring & Ularling, W.A., *Young s.n.*, 7-9.x.1875, MEL! (photo).

The above basionym applies to both the species and the type subspecies. Synonyms are listed under the subspecies to which they apply.

Description

Low to medium shrub, or rarely small tree, 0.4-2 m tall; *leaflets* (2-) 6-14 pairs, variable in form and indumentum, crowded (less than 5 mm apart), less than 15 mm long, all equal or decreasing in size from the base of the rachis; *glands* sessile or stalked, flat, cylindrical or pointed; *petiole* short, 1-5 mm long; *inflorescence* a subumbellate raceme near the end of branches; *bracts* usually caducous at anthesis; *sepals* oval, 3-5 mm long, greenish yellow; *petals* oval, 4-6 (-8) mm long, usually glabrous; *anthers* 10, 2-3 mm long; *filaments* subequal, 7 adaxial 1 mm long, 3 abaxial 2 mm long; *ovary* 4-6 mm long, glabrous or hairy; *pod* 3-5 cm x 6-8 mm, straight or curved, glabrous or hairy; *seeds* oval, dark, c. 4 mm long. Plates 17, 18.

Distribution

A species widespread in arid areas of southern Western Australia, southern Northern Territory, and South Australia.

Notes

S. cardiosperma differs from the other members of this series in the smaller, generally more numerous and crowded leaflets, and in the smaller flowers. Apparently it has not been as successful as has *S. artemisioides* as a high proportion of its included taxa are known only from a few collections, and very few appear to be involved in hybridization. This may be the result of either less efficient adaptation leading to restricted distribution and few sympatric contacts, or some reproductive isolation still operative when the forms are sympatric (e.g. subspp. *cardiosperma* and *stowardii*). In most cases, geographic distribution would seem to be the important factor.

Key to the subspecies of *S. cardiosperma*

1. Leaflets terete or linear and tightly recurved:
 2. Leaflets 3-4 pairs, sparsely hairy 8. subsp. *manicula*
 2. Leaflets 8-10 pairs, densely woolly-hairy 7. subsp. *microphylla*
1. Leaflets horizontally flattened:
 3. Leaflets densely hairy below, glabrous above 3. subsp. *cuthbertsonii*
 3. Leaflets not as above:
 4. Leaves 3-5 cm long; leaflets ovate 10-13 pairs 4. subsp. *flexuosa*
 4. Leaves shorter:
 5. Leaflets spatulate, 5-6 pairs 2. subsp. *pilocarina*
 5. Leaflets not as above:
 6. Leaflets obovate, 7-10 pairs 5. subsp. *gawlerensis*
 6. Leaflets linear to elliptic:
 7. Leaflets 5-14 pairs; flowers 3-5 per peduncle 6. subsp. *stowardii*
 7. Leaflets 2-4 pairs; flowers 2-3 per peduncle 1. subsp. *cardiosperma*

9.1 subsp. *cardiosperma*

Basionym and holotype: as for the species.

Description

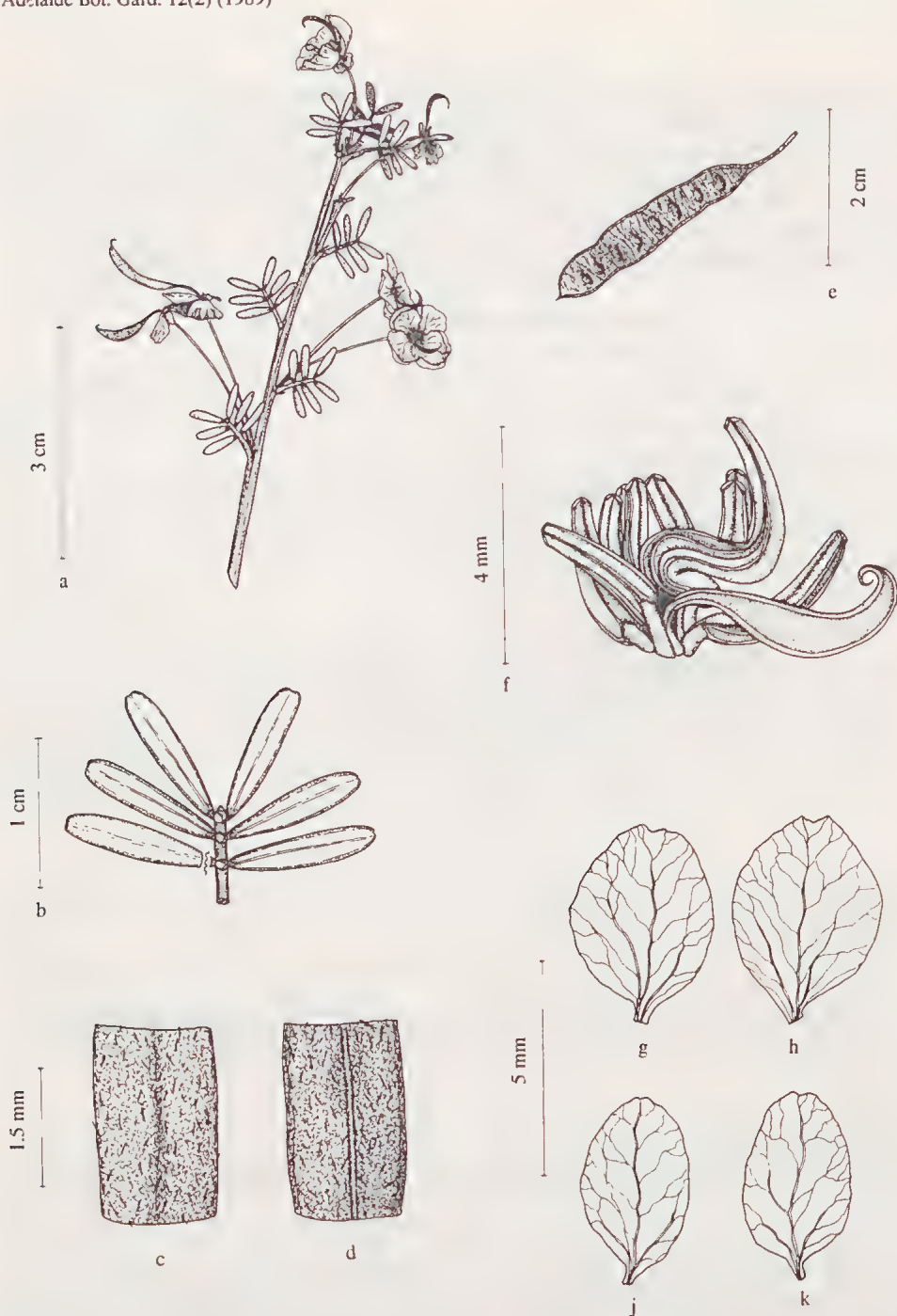
Leaflets 2-4 pairs, linear to obovate, 8-15 mm x 1-3 mm; *indumentum* sparse or almost absent, of soft appressed hairs; *cuticular wax* thick and opaque, glaucous; *glands* sessile, elongate and pointed. Plate 17a-k.

Distribution and ecology

Occurs on rocky hillsides, in restricted areas around Kalgoorlie, Western Australia. Map 25.

Specimens examined

WESTERN AUSTRALIA: Goongarrie, *Maiden s.n.*, -.ix.1909 (AD); Laverton, *Maiden s.n.*, -.ix.1909 (AD); nr Laverton, *Hamilton Fisher s.n.*, -.vi.1922 (PERTH); Glenorn Stn, *Burbidge s.n.*, -.viii.1938 (PERTH); between Menzies and Comet Vale, *Blackall 4179*, -.ix.1939 (PERTH); between Leonora and Menzies, *Blackall 4141*, -.ix.1939 (PERTH); Laverton, *Gardner and Blackall 3951*, 9.viii.1951 (PERTH); 5 miles S Menzies, *Green 1673*, 30.viii.1957 (PERTH); 8 miles S Menzies, *George 2717*, 21.viii.1961 (PERTH); 8 miles SW Coolgardie, *Beard 3398*, 28.v.1964 (PERTH); SW Coolgardie, *Davies 488*, -.ix.1964 (PERTH); Lord Bobs road, S Coolgardie, *Bale 284*, -.viii.1965 (PERTH); 24 miles N Perrin Vale Stn, *Symon 5470*, 5.viii.1967 (AD); 45 km E Edjudina Hstd, *Wilson 7566*, 1.ix.1968 (AD, PERTH); 9 miles SW Coolgardie, *Phillips s.n.*, 6.ix.1968 (AD); Cosmo Newberry, *Demarz 7273*, 20.xi.1978 (PERTH); 15 km S Laverton toward Mt Weld, *Randell 315*, 14.iv.1986 (AD).



Bella Chandler

Plate 17. *S. cardiosperma* subsp. *cardiosperma*. a. habit, b. leaf detail, c. leaflet abaxial epidermis, d. leaflet adaxial epidermis, all from *Green 1673*; e. pod, from *Cummings 1673*; f. anther group, g. largest petal adaxial surface, h. largest petal abaxial surface, i. smallest petal adaxial surface, j. smallest petal abaxial surface, all from *Gardner & Blackall 395*.

9.2 subsp. *pilocarina* (Symon) Randell, comb. nov.

Basionym: *Cassia pilocarina* Symon, *Trans. Roy. Soc. S. Australia* 90: 109 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*, 62 (1970) as *C. pilocasina*; Erickson et al., *Fl. & Pl. Western Australia* 210 (1979).

Holotype: South Barlee Range, W.A.; *A. Robinson s.n.*, 7.ix.1959, PERTH! (photo).

Description

Leaflets 5-6 pairs, spatulate, flat or concave, 8-12 mm x 1-3 mm; *indumentum* sparse, of stiff erect hairs; *cuticular wax* thick; *glands* sessile, but elongate and pointed. Plate 18f.

Distribution

Very restricted in distribution in northwest of Western Australia. Map 25, Map 247.

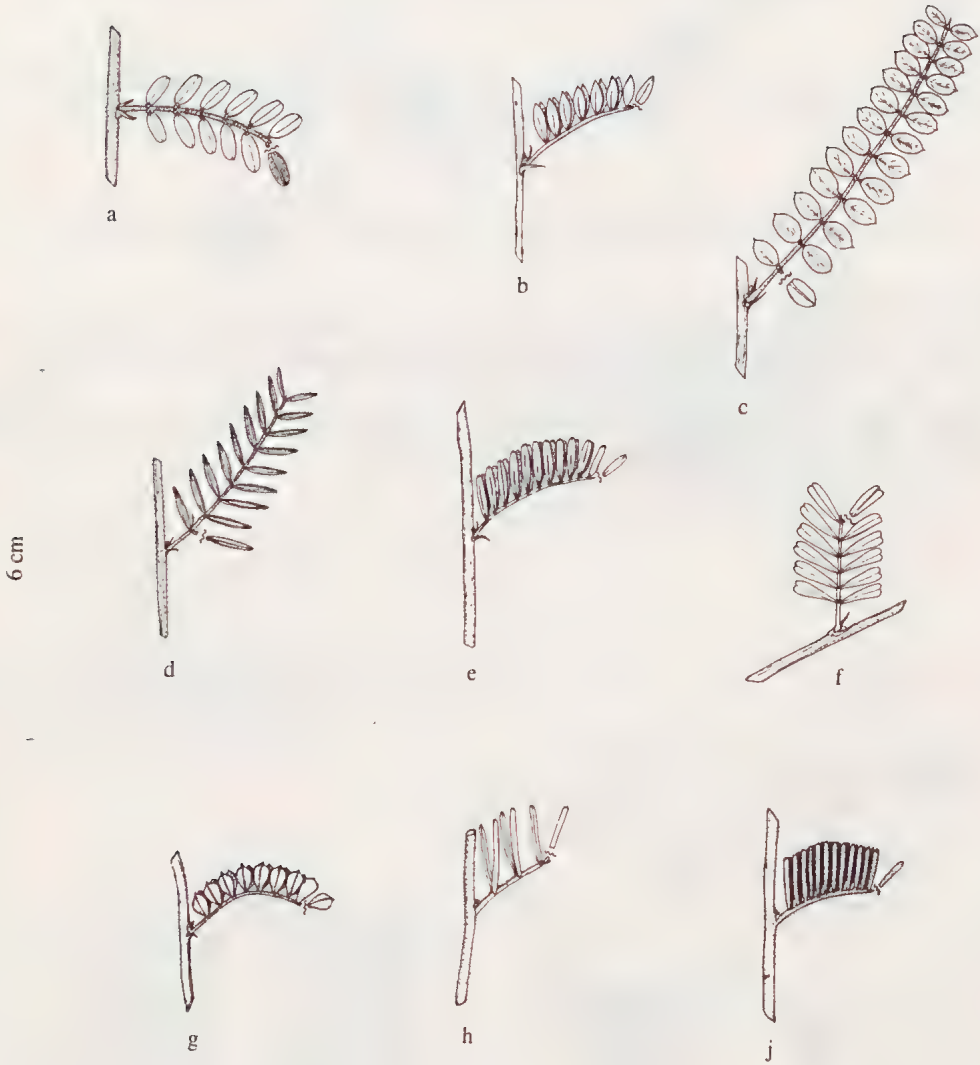
Specimens examined

WESTERN AUSTRALIA: Ullawarra Stn, *Royce* 6477, 16.viii.1961 (PERTH); Wanna, *Beard* 6066, 20.viii.1970 (PERTH); Ullawarra Stn, *Mitchell* 586, 7.vi.1978 (PERTH); Amelia Stn, *Mitchell* 595, 12.vi.1978 (PERTH).

[N.B. The specimen Barlee Ra., *Royce* 6590, 19.viii.1961 (PERTH), cited by Symon (1966) has not been seen and has apparently been mislaid.]



Map 25. ○ *S. cardiosperma* subsp. *cardiosperma*; ● *S. cardiosperma* subsp. *pilocarina*; ◐ *S. cardiosperma* subsp. *cuthbertsonii*; △ *S. cardiosperma* subsp. *flexuosa*; ■ *S. cardiosperma* subsp. *stowardii*; □ *S. cardiosperma* subsp. *microphylla*; ▲ *S. cardiosperma* subsp. *manicula*.



B Chandler

Plate 18. *S. cardiosperma* subspecies. Leaf structure. a. subsp. *cuthbertsonii*, Mitchell 242; b. subsp. *stowardii*, Wilson 7435; c. subsp. *flexuosa*, Mason s.n., -xi.1959; d. subsp. *stowardii*, Symon 5472; e. subsp. *stowardii*, Beard 6480; f. subsp. *pilocarina*, Beard 6066; g. subsp. *gawlerensis*, Williams 9417; h. subsp. *manicula*, Wittwer 1326; j. subsp. *microphylla*, Helms s.n., 30.vi.1881, (all with one leaflet reversed).

9.3 subsp. *cuthbertsonii* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia cuthbertsonii* F. Muell., *Victorian Nat.* 5: 75 (1888); Symon, *Trans. Roy. Soc. S. Australia* 90: 110 (1966); Beard, *Descr. Cat. Western Austral. Pl.* edn 2: 62 (1970).

Lectotype: on the Upper Ashburton River, Western Australia, *W. Cuthbertson s.n.*, 1888, MEL!, lectotype here designated; *isolectotype*: K (photo).

Description

Leaflets 5-9 pairs, elliptic to obovate, 6-11 mm x 3-6 mm; *indumentum* absent on adaxial surface, of dense woolly hairs on the abaxial surface; *cuticular wax* thick, reddish glaucous on adaxial surface; *glands* sessile, elongate and pointed. Plate 18a.

Distribution

Known from the type, and several further collections also on the Ashburton R., northwest of Western Australia. Map 25, p. 247.

Notes

Both ovaries and mature pods are densely pubescent in this taxon. A single collection from 20 km NW of Prairie Downs Hstd, Upper Ashburton (*Mitchell* 325, 26.iv.1977, PERTH), differs in having dense indumentum on both surfaces of the leaflets.

Specimens examined:

WESTERN AUSTRALIA: Teeaila R. area, *Setter* 425, 12.x.1973 (AD); 4 miles NNW Woolgatharra Pool, Mt Augustus Stn, *Setter s.n.*, 13.x.1973 (AD); 50 km N Mulgool Stn, *Mitchell* 76/194, 30.vi.1976 (PERTH); 50 km N Mulgool Stn, *Mitchell* 242, 22.ix.1976 (PERTH).

9.4. subsp. *flexuosa* Randell, subsp. nov.

Subsp. cuthbertsonii affinis sed foliolis pluribus (10-13-jugis) et pilis in paginis abaxialibus sparsis differt.

(Affinities with subsp. *cuthbertsonii* but leaflets more numerous (10-13 pairs), and hairs sparse on abaxial surface).

Holotype: Jibberding W.A., *C.A. Gardner* 12095, 7.ix.1953, PERTH!.

Description

Leaflets 10-13 pairs, oval to ovate, 4-10 mm x 2-4 mm; *indumentum* sparse, of stiff and erect, or soft and appressed hairs; *cuticular wax* in thick sheets; *glands* 1-2, flat and sessile. Plate 18c.

Distribution

Very restricted distribution in subcoastal areas of southern Western Australia. Map 25, p. 247.

Notes

Little variation observed except in type of hairs. However, this subspecies is somewhat different from other subspecies within *S. cardiosperma*, in the larger flowers (petals 7-10 mm long), and longer petioles (3-8 mm long). Thus, subsp. *flexuosa* is in some respects intermediate between *S. cardiosperma* and *S. artemisioides*.

Specimens examined

WESTERN AUSTRALIA: Carnamah, Victoria District, *Morrison* 16356, 30.x.1906 K (photo); 13 km N of Carnamah, *Chapman s.n.*, s.d. (PERTH); Wannana [sic], *Mason* 12283, -.11.1959 (PERTH); Edah Stn, *Malcolm s.n.*, 21.x.1964 (PERTH); track to Mt Churchman, *Demarz* 5393, 5.ii.1974 (PERTH); 8 km N Yuin Stn, *Mitchell* 925, -.ii.1981 (PERTH).

9.5 subsp. *gawlerensis* Randell, subsp. nov.

Subsp. microphyllae affinis sed foliolis obovatis, non teretibus et sparsim pubescentibus differt.

(Affinities with subsp. *microphylla*, but leaflets obovate not terete, and sparsely pubescent.)

Holotype: Yandoolka Well, c. 10 km W of Lake Everard Hstd, *V. Jaegermann* 147, 29.ix.1972, AD.

Paratypes: i) c. 19 km NE of Port Augusta; *Randell* 226/435; 226/425; 226/480, 11.x.1967, all AD; ii) c. 3 km W of Nonning Hstd, *Randell* 162/3, 8.x.1966, AD.

Description

Leaflets 7-10 pairs, obovate, 3-6 mm x 2-4 mm; *indumentum* sparse, of soft appressed hairs; *cuticular wax* in thick sheets, glaucous; *glands* single, inconspicuous. Diploid $n=14$, triploid $n=42/2$, tetraploid $n=28$, all scattered on Eyre Peninsular, S.A. (Randell 1970). Plate 18g.

Distribution and ecology

Occurs in a variety of habitats from rocky hillsides to sand. Currently restricted to Eyre Peninsular and north western South Australia, but hybrid swarms suggest that it may have been removed from the Flinders Ranges since European settlement. Map 26.

Notes

Little variation observed within the taxon. However, many hybrid swarms are seen linking subsp. *gawlerensis* with subsp. *filifolia*, *petiolaris* and \times *artemisioides*, and including subsp. \times *coriacea* among the intermediates. The following arbitrary decisions separate the subspecies.

Leaflets terete:

Petioles >15 mm longsubsp. *filifolia*

Petioles <15 mm longsubsp. \times *artemisioides*

Leaflets flattened:

Petioles >6 mm long; leaf rachis straight subsp. \times *coriacea*

Petioles <5 mm long; leaf rachis recurved subsp. *gawlerensis*

The following fruiting specimen seems to be related to subsp. *gawlerensis*, but could even be another subspecies of *S. cardiosperma* not recognised here. However, flowering material is needed to establish with certainty that it is *Senna*. Top of Mt Woodroffe, *E.C. Black s.n.*, 18.iv.1950, 2 sheets, (AD).

Selection of specimens examined (c. 100 seen)

SOUTH AUSTRALIA: 16 miles W Mabel Ck Hstd, *Forde* 314, 23.viii.1956 (AD, CANB); roadside, base of Middleback Ra., 45 km WSW Whyalla, *Whibley* 263, 2.x.1958 (AD, M, TI, UC); on Peterlumba and near Buckleboo Stn, c. 50 km NW Kimba, *Rohrlach* 414, 15.viii.1959 (AD, B, BM); c. 35 km N Watson, near Maralinga, *Wilson* 1740, 18.ix.1960 (AD, BM, G, K, P); c. 22 km E Ooldea, *Wilson* 1838, 24.ix.1960 (AD, IA); 22 mi W McDouall Pk Stn, *Symon* 1076, 5.xii.1960 (AD); Mabel Ck, *S.A. Pastoral Board, s.n.*, 23.ix.1966 (AD); c. 70 km E Yardea Hstd, *Copley* 2106, 31.viii.1968 (AD); c. 16 km SE Kokatha Stn, between Lakes Gairdner and Everard, *Spooner* 188, -ix.1968 (AD); c. 5 km S Wheelhole Bore, Lake Everard Stn, *Spooner* 2427, 4.ix.1972 (AD); c. 10 km N Emu, *Brooks* 28, 16.ix.1972 (AD, NY, OSHKOSH); c. 19 km E Emu, *Brooks* 31, 18.ix.1972 (AD, RSA, SYD); along vermin fence, 15 km WNW Kondoolka Hstd, *Weber* 3150, 25.x.1972 (AD); Canopus Stn, c. 95 km N Renmark, *Mrs P. Foreman* 31, 25.iii.1978 (AD); Mt Finke road, *Bates* 208, -viii.1978 (AD, DNA); 3 km S Dingo Flat gate, Commonwealth Hill Stn, *Sinclair & Bird* 9, -iv.1981 (AD).



Map 26. *S. cardiosperma* subsp. *gawlerensis*.

9.6 subsp. **stowardii** (S. Moore) Randell, comb. nov.

Basionym: *Cassia stowardii* S. Moore, *J. Linn. Soc. London* 55: 171 (1920).

Holotype: Mt Marshall, W.A., F. Stoward 386, 1916, BM (photo).

Description

Leaflets (5-) 9-14 pairs, linear, obtuse, (4-) 6-10 mm x 1-4 mm; *indumentum* sparse, of soft appressed hairs; *cuticular wax* in sheets; *glands* sessile and pointed, rarely elongate. Plate 18b,d,e.

Distribution and ecology

Restricted to erosional faces of breakaways north and northwest of Kalgoorlie, Western Australia. Map 25, p. 247.

Notes

Resembles *S. cardiosperma* subsp. *cardiosperma* in small flowers and small crowded leaflets, but differs in having more leaflets (5-14 pairs) and more flowers per peduncle (3-5). Vegetatively it resembles *S. artemisioides* subsp. *stricta* in the elongate leaflets which dry with a reddish glaucous appearance, but differs in the small flowers (petals 4-6 mm long), the short petioles (1-4 mm long) and the crowded appearance of the leaflets.

Selection of specimens examined (c. 30 seen)

WESTERN AUSTRALIA: Fraser Ra., E Norsemann, *Helms s.n.*, 21.x.1891 (AD); Southern Cross, *Maiden s.n.*, -x.1909 (AD); Coolgardie, *Gardner 841*, 2.x.1920 (PERTH); Calooli, *Brockway 56*, 13.x.1939 (PERTH); Woolgangie, *Cough 138B*, 19.ix.1963 (PERTH); 16 km N Kalgoorlie on old Menzies road, *Symon 5473*, 6.vii.1967 (AD); Cundeelee, *Boswell R78*, 1967 (PERTH); Von Truer tableland, *Wilson 7435*, 28.viii.1968 (PERTH); Walyahmoning Rock, *Baynes Museum 68*, -x.1972 (PERTH); Teutonic exploration site, *Cumming 1246*, 16.viii.1981 (PERTH); 20 km S Windimurra Hstd, *Mitchell 1019*, 16.viii.1982 (AD); Granite Peak Stn, *Mitchell s.n.*, 22.vi.1985 (AD); roadside 5 km S Leonora, *Randell 305*, 13.iv.1986 (AD); 11.4 km E Laverton on old Warburton road, *Randell 313*, 14.iv.1986 (AD); 10 km N Laverton on new Leonora road, *Randell 314*, 14.iv.1986 (AD); 15 km S Laverton on Mt Weld Road, *Randell 315*, 14.iv.1986 (AD); 33.4 km N Leonora on Wiluna road, *Randell 317*, 15.iv.1986 (AD); 16.9 km NE Leonora on Mertondale road, *Randell 325*, 15.iv.1986 (AD); 5 km W Yuinmery Hstd on Youanmi road, *Randell 326*, 16.iv.1986 (AD); 47.1 km SW Paynes Find on slopes of Mt Singleton, *Randell 328*, 17.iv.1986 (AD).

9.7 subsp. *microphylla* Randell, subsp. nov.

Subsp. maniculae affinis sed foliolis pluribus (8-10-jugis), brevioribus et indumento densolanato tectis differt.

(Affinities with subsp. *manicula* but leaflets more numerous (8-10 pairs), shorter, and with densely woolly tomentum.)

Holotype: Far North-West, Head of Arckaringa Creek, Elder Exploring Expedition, Camp 12, *R. Helms s.n.*, 30.vi.1891, AD; *isotypes* AD!, NSW!

Paratype: c. 80 km SE of Mt Lindsay, *R.B. Major 10*, 1966, AD.

Description

Leaflets 8-10 pairs, terete, 8-12 mm long, 1 mm diameter; *indumentum* of densely woolly hairs; *cuticular wax* not obvious; *glands* inconspicuous. Plate 18j.

Distribution

Restricted to the far NW of South Australia, and S of N.T. Map 25, p. 247.

Notes

Herbarium specimens from NW of South Australia show the existence of a range of specimens linking subsp. *microphylla* with subsp. \times *artemisioides* which is assumed to be of hybrid derivation from this parent. An arbitrary separation can be made on the length of petioles and distance between leaflets.

Petiole <5 mm long, leaflets crowded subsp. *microphylla*

Petiole >6 mm long, leaflets >6 mm apart subsp. \times *artemisioides*

Another series of specimens from the same geographic area suggests intergradation with specimens of subsp. \times *coriacea* and subsp. *gawlerensis*, which both have broad leaflets. Again the separation can be made on the basis of petiole length and leaflet morphology.

Leaflets terete, petiole <5 mm long subsp. *microphylla*

Leaflets flat, petiole <5 mm long subsp. *gawlerensis*

Leaflets flat, petiole >6 mm long subsp. \times *coriacea*

Population studies would test the hypothesis of the derivation of subsp. \times *artemisioides* from subsp. *microphylla* as parent.

Specimens examined

NORTHERN TERRITORY: Glen Helen, MacDonnell Ranges, *Cleland s.n.*, 18.viii.1929 (AD); Palm Valley, *Cleland s.n.*, 31.viii.1956 (AD); Palm Valley, *Hill & Lothian 937*, 15.vii.1958 (AD, DNA, K).

SOUTH AUSTRALIA: Victoria Desert, Camp 54, *Helms s.n.*, 17.ix.1891 (MEL); Mt Willoughby, c. 130 km SW Oodnadatta, *Ising s.n.*, 1.viii.1951 (AD); c. 95 km E Tallaringa Well, *Donner 3844*, 13.vii.1972 (AD, G, TI, Z); c. 16 km NE Moolalpinna Hill, c. 5 km ESE Ampeinna Hills, *Barker 2863/2*, 26.viii.1978 (AD, LUN, M, MO); eastern slopes Mt Lindsay inselberg, *Whibley 6565*, 31.viii.1978 (AD).

9.8 subsp. **manicula** (Symon) Randell, comb. nov.

Basionym: *Cassia manicula* Symon, *Trans. Roy. Soc. S. Australia* 90: 119 (1966); Beard, *Descr. Cat. West Austral. Pl. edn 2*, 62 (1970).

Holotype: Diorite King, Western Australia, *S. Davies s.n.*, 11.vii.1960, PERTH! (photo).

Description

Leaflets 3-4 pairs, linear but edges tightly recurved, 6-10 mm long, 1 mm diameter; *indumentum* sparse, of soft appressed hairs; *cuticular wax* thick, not glaucous; *glands* inconspicuous. Plate 15h.

Distribution and ecology

Restricted to rocky hillsides around Kalgoorlie, Western Australia. Map 25, p. 247.

Notes

Little variability observed. Some forms have thinner wax and fewer hairs, and thus appear greener than the type. Population studies show no evidence of hybridization, and suggest the differences in appearance are due to genetic variability within subsp. *manicula* itself.

Specimens examined

WESTERN AUSTRALIA: Lake Barlee, *Forrest s.n.*, 1869 (MEL); Lawlers, *Cleland s.n.*, 1914 (AD); Mt Fouracre, NW Leonora, *Gardner & Blackall 341*, 25.vii.1931 (PERTH); 10 miles from Leonora towards Laverton, *Blackall 368*, 6.viii.1931 (PERTH); 13 miles N Leonora, *Davies s.n.*, 11.vii.1960 (PERTH); Old Telegraph Line, 17.5 miles W Hammersley R., *George 7101*, 31.x.1965 (PERTH); 6 miles E Caiguna, *Aplin & Trudgen 5838*, -vi.1974 (CANB, PERTH); 62 miles N Leonora, *Wittwer W1326*, 9.viii.1974 (PERTH); Teutonic exploration camp, *Cumming 1219*, 12.viii.1981 (PERTH); Wilson's Ck, 3 km W Teutonic, *Cumming 1247*, 16.viii.1981 (PERTH); 2 km N Leonora, *Randell 307*, 13.iv.1986 (AD); 29.8 km E Malcolm, *Randell 312*, 14.iv.1986 (AD).

c. ser. *Oligocladae*

c. *Senna* Miller [sect. *Psilorhegma* (J. Vogel) Irwin and Barneby] ser. ***Oligocladae* Randell**, ser. nov.

Folioli 1-3-juga; *semina* impolita; *legumina* brevia, *paginae interiora* valvis sine porcis.

(Leaflets 1-3 pairs; seeds dull; pods short, interior surface of valves without ridges.)

Type species: *S. oligoclada* (F. Muell.) Randell

Synonyms

1. *Cassia* [subgen. *Senna* (Miller) Benth. sect. *Psilorhegma* (J. Vogel) Benth.] ser. *Interglandulosae* Benth., *Trans. Linn. Soc. London* 27: 554 (1871), p.p., as for *C. leptoclada* and *C. goniodes*.

2. *Cassia* [subgen. *Senna* (Miller) Benth. sect. *Psilorhegma* (J. Vogel) Benth.] ser. *Subverrucosae* Benth., *Trans. Linn. Soc. London* 27: 556 (1871), p.p., as for *C. oligoclada* and *C. leptoclada*.

Description

Low shrubs or perennial herbs, sometimes with a persistent underground rootstock; *leaves* 20-80 mm long; *leaflets* 1-3 pairs, elliptic to ovate, pubescent or glabrous, not obviously sclerophyllous; *glands* sessile or stalked; *petals* 4-14 mm long; *Pods* short, curved, crenate, glabrous or pubescent; *seeds* oval, dark, dull.

Distribution and ecology

Restricted to far north and northwest of the Northern Territory and Western Australia. Occupies a range of habitats from deep desert sand, to swampy grassland, or dry sclerophyll forests.

Key to the species of ser. *Oligocladae*

1. Pedicels 1-2 mm long; petals 4-6 mm long 15. *S. curvistyla*
1. Pedicels >2 mm long; petals >7 mm long:
 2. Petals 7-10 mm long; plant \pm pubescent:
 3. Stipules cordate, pubescent, persistent 16. *S. cladophylla*
 3. Stipules acicular, caducous:
 4. Peduncles bearing 8-10 flowers; leaflets broad lanceolate 13. *S. heptanthera*
 4. Peduncles bearing 2-5 flowers; leaflets narrow to broad elliptic:
 5. Peduncles with (2-) 3-5 flowers; petioles 8-15 mm long 10. *S. oligoclada*
 5. Peduncles with 2-3 flowers; petioles 4-10 mm long *S. goniodes*
 2. Petals 11 mm or longer; plant glabrous:
 6. Peduncles with 2-3 flowers 12. *S. leptoclada*
 6. Peduncles with 5-8 flowers 14. *S. procumbens*

10. *S. oligoclada* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia oligoclada* F. Muell., *Fragm.* 3: 49 (1862); Bailey, *Fl. Queensland* 2: 462 (1900); Ewart & Davies, *Fl. Northern Territory* 134 (1917); Symon, *Trans. Roy. Soc. S. Australia* 90: 106 (1966); Beard, *Descr. Cat. Western Austral. Pl. edn 2*: 62 (1970); Symon in Jessop, *Fl. Central Australia* 109 (1981).

Lectotype: 'In locis arenoso-rupestribus secus ripas ostium Victoriae versus nec nor ad rivum Sturt's Creek. F. Mueller s.n.', K, mixed sheet of four fragments (photo), large central twig, lectotype here designated, [Note: the left fragment on the type sheet is probably *S. curvistyla* (J. Black) Randell, the two fragments on the right are *S. cladophylla* (W. Fitzg.) Randell]; *isolectotypes*: a) MEL! fragmentary (photo); b) K mixed sheet with R. Brown 4252, (*S. oligoclada*) (photo).

Syntype: 'prope Attack Creek, N.T., J. McD. Stuart, 1862' MEL! (photo).

[Note: Symon (1966) mistakenly listed 3 syntype localities for the basionym, as he assumed that 'Victoria River' and 'Sturts Creek' referred to two different collections. However, the protologue, using the wording given here, definitely gives only two localities.]

Synonyms

1. *C. oligoclada* F. Muell. var. *gracilis* Benth., *Fl. Austral.* 2: 289 (1864).

Holotype: Attack Creek, J. McD. Stuart, 1862, MEL! (photo).

2. *C. neurophylla* C.T. White & W.D. Francis, *Proc. Roy. Soc. Queensland* 37: 156 (1926).

Lectotype: Sandstone Ranges, Settlement Creek, Queensland, L. Brass 274, -ii.1923, BRI! (photo), lectotype here designated; *isolectotype*: K, 2 sheets (photos).

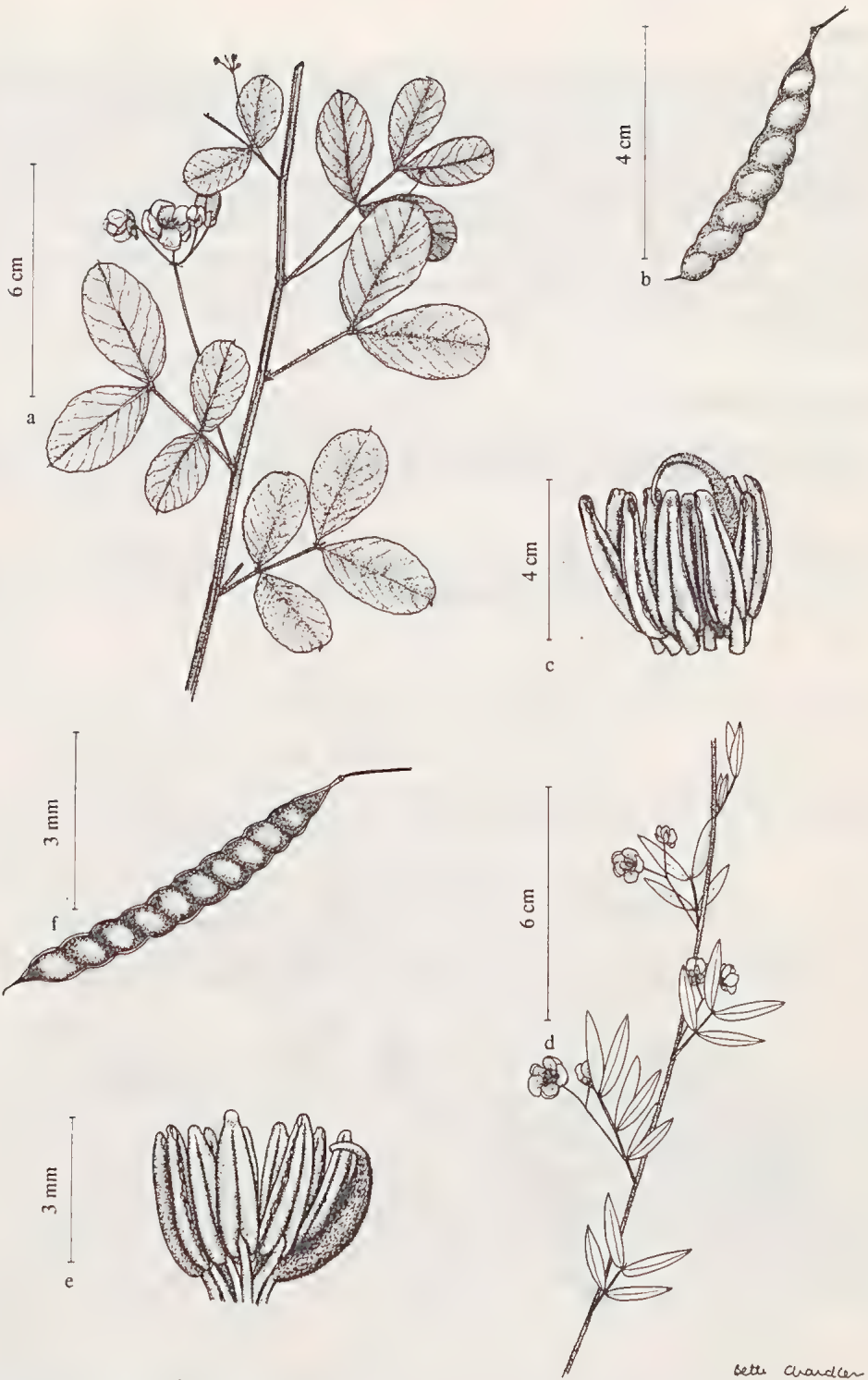


Plate 19. a-c. *S. oligoclada*. a. habit, b. pod, c. anthers, all from *Leufert* 28. d-f. *S. goniodes*; d. habit, e. anthers, both from *Wilson* 11292; f. pod, from *George* 12837.

Description

Shrub 1-3 m high, pilose on all vegetative parts; *leaves* 3-6 cm long including petioles; *leaflets* 1-3 pairs, elliptic to oblong to obovate, 10-15 mm apart on the rachis, the largest 20-35 mm x 8-15 mm, increasing in size from the base of the rachis, apex rounded obtuse or acute, mucronate, base unequal cuneate, pilose, veins obscure above, prominent below, epidermal wax sometimes conspicuous; *glands* sessile erect; *stipules* acicular, usually caducous; *petiole* terete 8-15 mm long; *inflorescences* scattered along the branches, (2-) 3-5 flowered; *peduncles* 30-50 mm long; bracts *caducous at anthesis*; *pedicels* of open flowers 12-18 mm long; *sepals* obovate, shorter than petals, pubescent; *petals* obovate, 8-10 mm long, yellow, glabrous; *anthers* 10, usually all fertile, subequal, truncate; *filaments* subequal; *ovary* pilose; *pod* short 30-50 mm x 10 mm, curved, crenate, pilose; *seeds* 6-8, transverse, not as long as pod is wide. Plate 19a-c.

Distribution and ecology

Perhaps associated with sandy watercourses in far north west of Western Australia. Distribution is not coastal (contrasting with *S. goniodes*). Map 27, p. 256.

Notes

Closely related to *S. goniodes* from which it differs in the number of flowers on the peduncle, and in the generally broader, more rounded leaflets.



Map 27. ○ *S. oligoclada*; □ *S. goniodes*; ▲ *S. leptoclada*; ● *S. procumbens*.

Specimens examined

WESTERN AUSTRALIA: Roebuck Bay, *Tepper* 287, -i.1890 (MEL, PERTH); Denham R., *Fitzgerald* 1634, -x.1906 (NSW); Leonard R., Kimberleys, *Edwards s.n.*, -iii.1922 (PERTH); Drysdale Mission, Napier Broome Bay, *Gardner* 938, s.d. (PERTH); Ord R., *Durack s.n.*, -iv-v.1945 (PERTH); Deception Ra., E. Kimberley, *Langfield* 355 and 357, 1.xii.1954 (both PERTH); Cockatoo Sands, E Kimberley, *Langfield* 369, 27.ii.1955 (PERTH); St Georges Ra., *Gardner* 12403, 4.v.1960 (PERTH); Kununurra, *Leufert* 28, 15.xii.1967 (PERTH); Argyll Stn, *Black* 56, 26.ii.1972 (PERTH); W Argyll Downs Stn, *Aplin s.n.*, 21.v.1973 (PERTH); Broiga Falls, Drysdale R. Natl Park, *Kenneally* 3047, 4.viii.1975 (PERTH); the Grotto, 30 km SSE Wyndham, *Beauglehole* 54040, 29.vi.1976 (PERTH); Kimberlite Pipe Gap, SW Lake Argyle, *Weston* 12317, 6.v.1980 (PERTH).

NORTHERN TERRITORY: 16 miles W El Sharana, Pine Creek road, *Mertensz & Schodde* AE 480, 22.i.1973 (AD).

11. *S. goniodes* (A. Cunn. ex Benth.) Randell, comb. nov.

Basionym: *Cassia goniodes* A. Cunn. ex Benth. in Hook., *Icones plant. ser.* 3, 1: 48, t. 1061 (1870); *Trans. Linn. Soc. London* 27: 554 (1871).

Lectotype: Usbornes Harbour, voyage of the Beagle 1837-38, *A. Cunningham s.n.*, K, lectotype here designated (photo).

Syntypes: 1. Greville Is., Regent R., voyage of Bathurst, *Cunningham* 225, 1821-22, K (on sheet with lectotype) (photo), BM (photo). 2. York Sound, voyage of the Mermaid, *Cunningham* 210, 1820, K (on sheet with lectotype) (photo), BM, (photo).

Synonyms

1. *Cassia oligoclada* sensu F. Muell., *Fragm.* 10: 9 (1876), p.p., as for *C. goniodes* A. Cunn. ex Benth.; Symon, *Trans. Roy. Soc. S. Australia* 90: 106 (1966), p.p., as for *C. goniodes* A. Cunn. ex Benth.

2. *C. neurophylla* W. Fitzg. *J. Proc. Roy. Soc. Western Australia* 3: 147 (1918).

Holotype: Edkins Ra., hills near Barker R., Western Australia, *Fitzgerald s.n.*, 1905, NSW (photo). There is also in BRI a sheet of two twigs collected 'Artesian Range Kimberley', *Fitzgerald s.n.*, May 1905, determined as *C. neurophylla* W. Fitzg., which is probably part of the type collection.

3. *C. oligoclada* var. *goniodes* (A. Cunn. ex Benth.) Domin, *Biblioth. Bot.* 89: 796 (1926).

4. *C. oligoclada* var. *subsinguliflora* Domin, *Biblioth. Bot.* 89: 796 (1926).

Holotype: between the Ashburton and De Grey Rivers, W.A., *E. Clement s.n.*, not seen, cited doubtfully by Symon (1966) as K. Placed here because of the description "foliola acuta vel subacuta, flores solitarii vel interdum bini".

Description

Shrub to 1 m tall, with all vegetative parts pilose with pale hairs; *leaves* 3-5 cm long, including petiole 4-10 mm long; *leaflets* 2-3 pairs, narrow elliptic to elliptic, 8-15 mm apart on the rachis, the largest 20-40 mm x 8-12 mm, increasing in size from the base of the rachis, apex acute mucronate, base acute somewhat unequal, midrib obscure above, prominent below, epidermis sometimes waxy; *glands* sessile erect; *stipules* acicular usually caducous; *petioles* terete; *inflorescence* cymose, axillary, along the branches, bearing 2(3) flowers; *peduncles* (20-) 30-50 mm long; *bracts* caducous; *pedicel* 10-15 mm long; *sepals* subequal, shorter than petals; *petals* glabrous, 8-10 mm long including the claw; *anthers* 10, all fertile, subequal, on stout subequal filaments; *ovary* pilose; *Pods* short 30-50 mm x 8-10 mm, curved, usually crenate, pilose; *seeds* 4-8, flat, lying transversely, shorter than pod is wide. Plate 19d-f.

Distribution and ecology

Distribution may be related to watercourses in coastal areas of far northwest Western Australia. Map 27, p. 256.

Notes

S. goniodes differs from *S. oligoclada* in having consistently fewer flowers per peduncle (2-3, where *S. oligoclada* has 3-5), and in having narrow elliptic, acute tipped leaflets. However, some specimens of *S. oligoclada* also have narrow acute leaflets, making identification difficult in the absence of floral material. The taxon may be better treated as a subspecies of *S. oligoclada*.

Specimens examined

WESTERN AUSTRALIA: Prince Regents R., *Gardner* 877 or 1377, 14.vi.1921 (PERTH); Isdell R., 10 miles from mouth, *Davis s.n.*, 26.viii.1943 (PERTH); Prince Regents R., *Gardner* 9640, 14.vii.1950 (PERTH); Nerrima Stn, *Beard* 4216, 25.v.1965 (PERTH); Augustus Is., Bonaparte Archipelago, *Wilson* 10851, 18.v.1972 (MEL, PERTH); Champagny Is., Bonaparte Archipelago, *Wilson s.n.*, 27.v.1972 (PERTH); 20 km S Kimberley Downs Hstd, *Aplin* 5072, 18.vi.1972 (CANB, PERTH); Sir Graham Moore Is., *Wilson* 11190, 30.vi.1973 (PERTH); Cape Anjo, *Wilson* 11292, 2.vii.1973 (PERTH); Wood Is. Nth, *Wilson* 11536, 13.vii.1973 (PERTH); Gariyeli Creek, Prince Regent R. Reserve, *George* 12837, 30.viii.1974 (CANB, PERTH); SE Cape Londonderry, *George* 13368, 5.viii.1975 (CANB, PERTH); Drysdale R., above Mogurnda Creek, *George* 13450, 6.viii.1975 (PERTH); Mogurnda Creek, near Drysdale R., *George* 13587, 9.viii.1975 (PERTH); Mitchell R. Plateau, c. 200 km W Wyndham, *Beaublehole* 51928, 2.vi.1976 (PERTH); Cone Hill, Cape Domett, *Hartley* 14745, 22.iii.1978 (PERTH); headwaters, Helby R., *Hartley* 14817, 27.iii.1978 (DNA, PERTH).

12. *S. leptoclada* (Benth.) Randell, comb. nov.

Basionym: *Cassia leptoclada* Benth., *Fl. Austral.* 2: 290 (1864); Bailey, *Fl. Queensland* 2: 462 (1900); Ewart & Davies, *Fl. Northern Territory* 135 (1917); Symon, *Trans. Roy. Soc. S. Australia* 90: 105 (1966).

Lectotype: Carpentaria Islands, R. Brown 4254, 21.i.1803, (No. 22 Descr.), BM (photo), lectotype here chosen; *isolectotypes*: K and E (Symon 1966), MEL !

Description

Shrub 1-3 m high with slender sometimes drooping branches, and greenish-yellow bark; whole plant apparently glabrous; *leaves* 3-7 cm long including petiole 10-25 mm; *leaflets* (1-) 2 (-3) pairs, broad elliptic to oval, 10-20 mm apart on the rachis, largest 15-30 mm x 8-20 mm, increasing in size from the base of the rachis, apex rounded to obtuse, not mucronate, base obtuse to cuneate, somewhat unequal, epidermis without conspicuous wax, sometimes discolourous, midrib obscure above, conspicuous below; *glands* sessile, erect and conical, between all leaflet pairs; *inflorescences* axillary along branches, 2 or 3 flowered; *peduncles* 5-15 mm long; *bracts* caducous at anthesis; *pedicels* 10-20 mm long; *sepals* shorter than petals; *petals* glabrous, 11-14 mm long; *stamens* 10, all fertile, subequal, subequal filaments; *ovary* glabrous; *pod* short, 10-50 mm x 10 mm, straight, crenate, light brown; *seeds* (2-) 6-8, transverse, shorter than the pod is broad. Plate 20a-c.

Distribution

Very restricted distribution in Arnhemland, Northern Territory, perhaps associated with limestone. Map 27, p. 256.

Note

Bentham first described this taxon from restricted material. Further collections indicate that both peduncles and pods can be longer than stated in his description. The taxon has obvious affinities with *C. oligoclada*.

Specimens examined

NORTHERN TERRITORY: near Western Creek, Borroloola, *Hill 754*, 15.ii.1912 (AD, DNA, MEL); Arnhem Land, *Basedow 60a*, --.1928 (AD); 15 miles SE Mt Basedow, *Lazarides 7977*, 3.iii.1973 (AD); c. 9.5 miles SW Mt Gulruth, *Lazarides 8010*, 4.iii.1973 (PERTH); WNW Nabalek, *Dunlop 4970*, 10.vii.1978 (AD, BRI, CANB, DNA, K); site 73, Kakadu Natl Park, *Lazarides 9071*, 29.v.1980 (AD, DNA); site 92, Kakadu Natl Park, *Craven 6266*, 2.vi.1980 (CANB, MEL); 2 km S Muralidbar Creek crossing on Gerfelli-Maninguda [sic] road, *Henshall 3831*, 17.x.1981 (AD, CANB, DNA); 6 km S Mt Gilruth, Arnhem Land, *Wightman & Craven 1344*, 26.iii.1984 (AD, BRI, CANB, DNA, K, L, MEL, PERTH)

QUEENSLAND: NE Mt Isa, *Beaglehole 55094*, 17.vii.1976 (MEL).



Plate 20. *S. leptoclada*. a. habit, b. pod, both from *Wightman 1344*; c. anthers from *Lazarides 9071*.

13. *S. heptanthera* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia heptanthera* F. Muell., *Fragm.* 10: 8 (1876).

Lectotype: Liverpool R. [N.T.], *B. Gulliver*, qui plantum sub itinere Cadelli legit, MELI, lectotype here designated; *isolectotype*: K (photo).

Synonym

C. oligoclada sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 106 (1966), p.p., as for *C. heptanthera* F. Muell.

Description

Creeping perennial; stems, petioles, peduncles, and stipules all with dense erect pale hairs; *leaves* to 60 mm long, including the petiole; *leaflets* 1-2 pairs, broad lanceolate to ovate, to 20 mm apart on the rachis, the largest 20-50 mm x 20-40 mm, slightly decreasing in size from the base of the rachis, apex obtuse and mucronate, base very unequal, glabrous above but pilose on the lower veins and ciliolate on the margins, veins conspicuous below; *gland* single, sessile, erect and pointed; *stipules* caducous; *petiole* terete, to 15 mm long; *inflorescence* near end of branches, bearing 8-10 flowers; *peduncle* 30-40 mm long; *pedicel* to 15 mm long; *sepals* subequal, to 5 mm long, brownish, pubescent dorsally, ciliolate; *petals* obovate, subequal, to 10 mm long, yellow, glabrous; *stamens* 7 (3 adaxial missing), all fertile, to 4 mm long, lanceolate, truncate, the 6 laterals with filaments 1 mm long, the single abaxial with filament 2 mm long; *ovary* 5 mm long, densely pilose with short curved and naked style; *immature pod* flat, pubescent, 25 mm x 6 mm; *ovules* 5 or 6; *fruiting pedicel* 18 mm long, becoming more robust; *seed* not seen. Plate 21a-d.

Distribution

Very restricted distribution in northern Arnhemland, Northern Territory.

Specimens examined

NORTHERN TERRITORY: 26 miles NNE Oenpelli Mission, *Lazarides* 7729, 16.ii.1973 (AD, BRI); 22 km NE Oenpelli Mission, *Adams* 2995, 17.ii.1973 (AD); Nabarlek, *Rankin* 2226, 23.iv.1979 (DNA); Workshop road, Murganella, *Wighman* 1062, 8.ii.1984 (DNA); Murganella camp, *Smith* 2018, 11.iii.1987 (DNA).

14. *S. procumbens* Randell, sp. nov.

S. heptanthera affinis sed antheris 10 et foliolis angustis ellipticis differt.

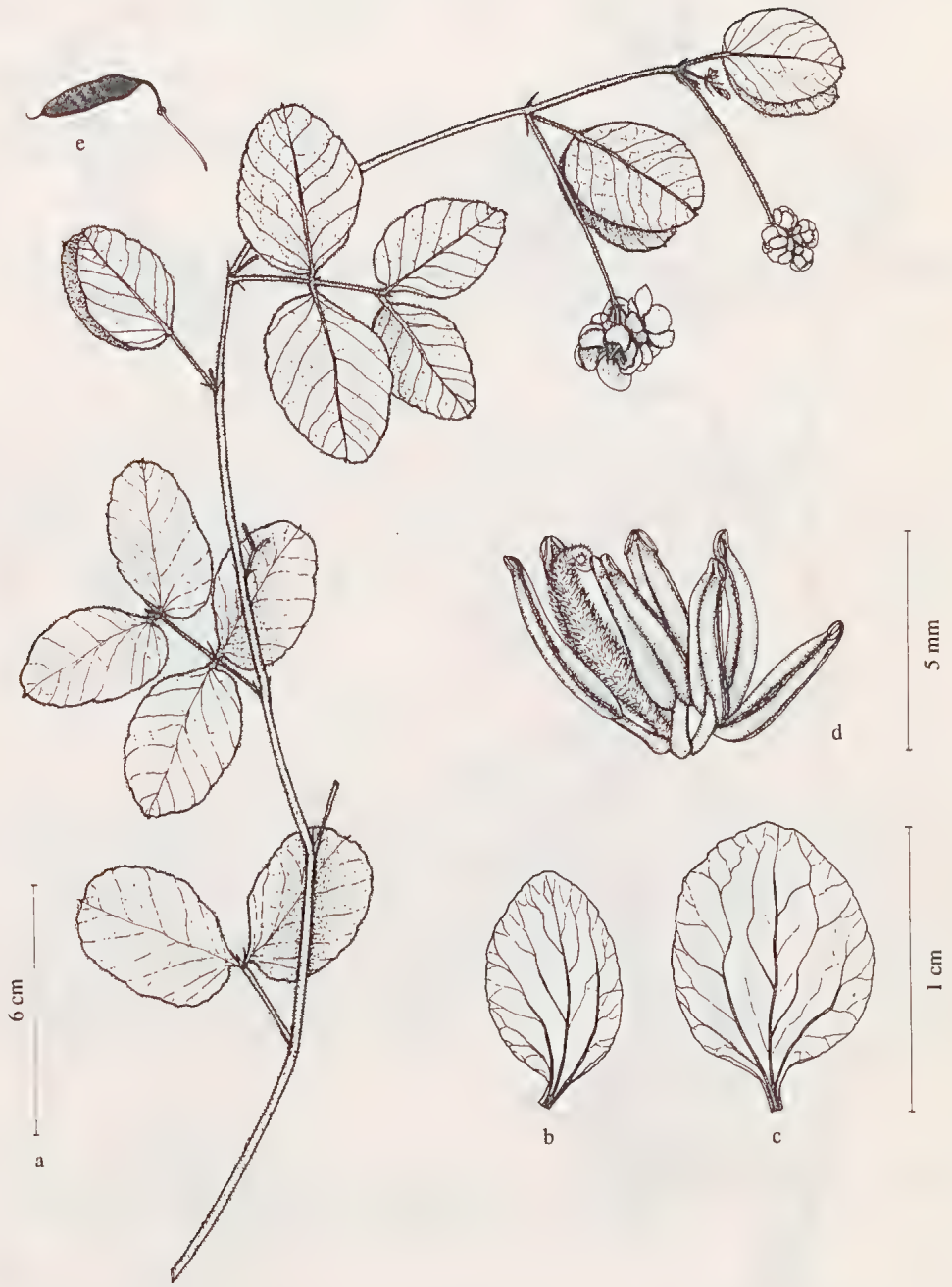
(Affinities with *S. heptanthera* but anthers 10 and leaflets narrow elliptic.)

Holotype: 10 miles N Pine Creek, N.T., *N. Byrnes* 1321, 30.i.1969, AD.

Paratypes: (i) 147 miles S Darwin, *George* 6510, 4.iv.1965, PERTH; (ii) Lloyd Creek, Stuart Hwy, N.T., *Byrnes* 1800, 5.v.1970, AD, NT; (iii) 8 miles N Pine Creek, N.T., *Byrnes* 2035, 21.i.1971, AD.

Description

Prostrate herb or shrublet, whole plant apparently glabrous except for a few hairs on young petioles and peduncles; *leaves* 5-8 cm long, including petiole; *leaflets* 2-3 pairs, stiff, narrow-elliptic or lanceolate, 8-12 mm apart on the rachis, the largest 4-5 cm x 10-15 mm, almost equal on each leaf, apex obtuse mucronate, base unequal, veins obscure above, prominent below, cuticular wax not obvious; *foliar glands* replaced by glandular hairs; *stipules* acicular, persistent, 6 mm x 2 mm; *petiole* 10-12 mm long, with wings to 2 mm broad at the base; *inflorescences* subumbellate, 5-8-flowered, near the end of branches; *peduncles* 3-6 cm long;



Bette Chandler

Plate 21. *S. heptanthera*. a. habit, b. smallest petal, c. largest petal, d. anthers, e. immature pod, all from *Lazarides* 7729.

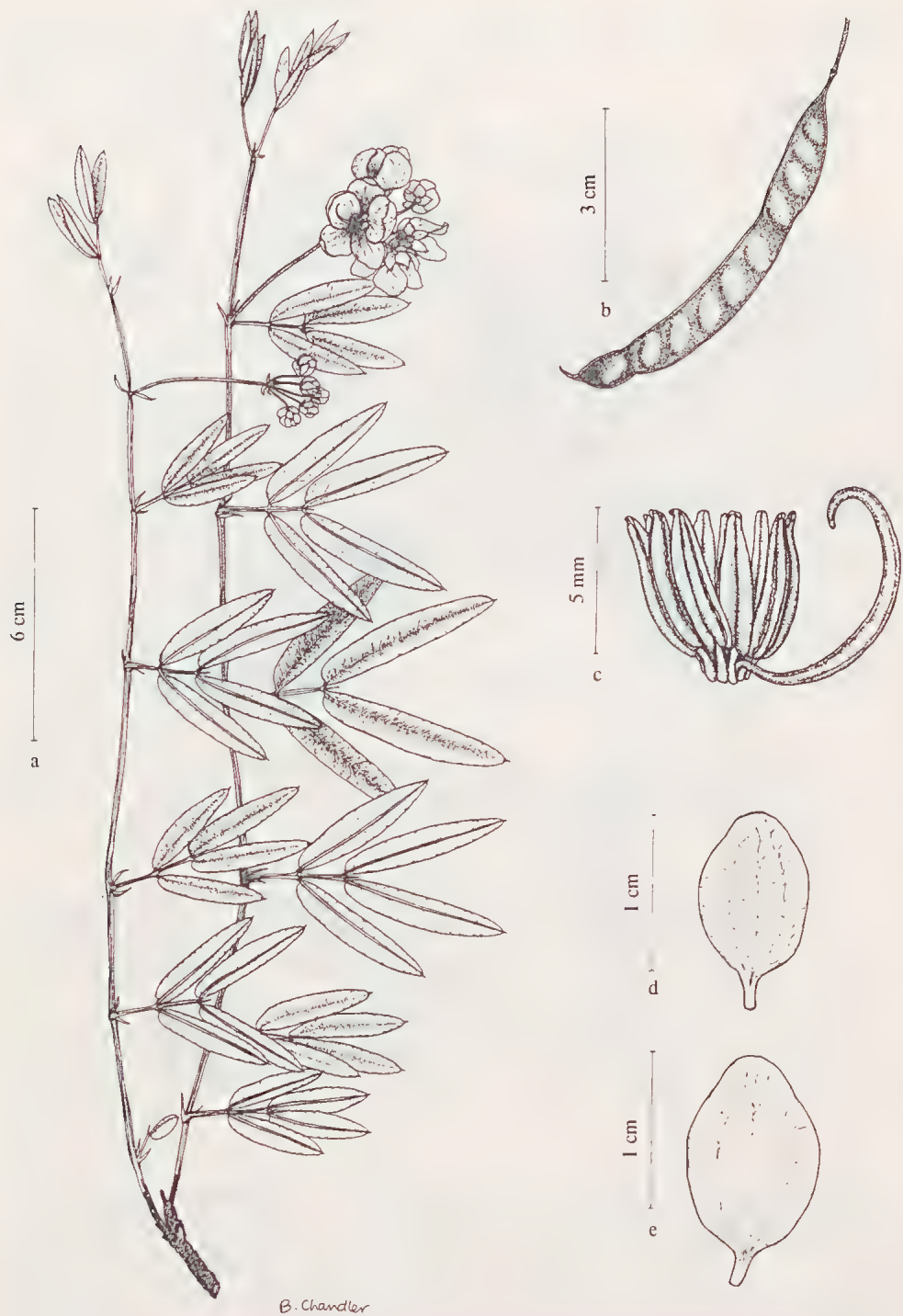


Plate 22. *S. procumbens*. a. habit, b. pod, c. anthers, d. smallest petal, e. largest petal, all from *Byrnes 1321*.

bracts sub-persistent, falling after anthesis; *pedicels* 15-20 mm long; *sepals* shorter than petals; *petals* glabrous, 11-13 mm long; *anthers* 10, all fertile, on subequal filaments; *ovary* glabrous; *pod* 50-70 mm x 8 mm, dark, straight or slightly curved, edges not crenate; *ovules* 7-10, transverse; *seeds* not seen. Plate 22a-e.

Distribution and ecology

Growing among tall grasses in swamps or open mixed forest in very restricted areas of Northern Territory. Map 27, p. 256.

Notes

Known only from the 4 specimens cited above. The prostrate habit is unique in Australian *Senna*. N. Byrnes suggests (pers. comm.) that it may regenerate from a lignotuber.

15. *S. curvistyla* (J. Black) Randell, comb. nov.

Basionym: *Cassia curvistyla* J. Black, *Trans. Roy. Soc. S. Australia* 62: 354 (1938).

Lectotype: West of Mt Davenport, N.T., *Ben Nicker* 1938, AD!, lectotype here designated.

Syntype: Twenty miles S of Granites, N.T., *Cleland s.n.*, -viii.1936, AD!; *isosyntypes*: K (photo), MEL!

Synonym

Cassia oligoclada sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 106 (1966), as for *C. curvistyla* J. Black.

Description

Small shrubs 10-30 cm tall, all vegetative parts pilose with pale erect hairs; *leaves* 20-30 mm long including petiole 3-6 mm long; *leaflets* 2-3 pairs, narrow-elliptic to elliptic, 4-10 mm apart on the rachis, the largest 5-15 mm x 3-5 mm, increasing in size from the base of the rachis, apex obtuse and without mucro, base rounded, slightly unequal, midvein obscure above, prominent below, cuticular wax not conspicuous; *glands* stalked; *stipules* acicular, persistent; *inflorescence* axillary, along stems, 2-flowered; *peduncles* 10-20 mm long; *bracts* usually caducous; *pedicels* very short, 2 mm long; *sepals* shorter than petals; *petals* glabrous, 4 mm long; *stamens* 10, all fertile, subequal filaments; *ovary* pilose; *Pods* 20-25 mm x 10 mm, flat, straight, not crenate, with persistent style; *seeds* 2-4, transverse, shorter than pod is broad. Plate 23a-e.

Distribution and ecology

Occurs on deep red desert sand. Rootstock often enlarged just below ground level, probably allowing quick regeneration after fire. Map 28, p. 265.

Notes

Resembles *S. cardiosperma* in the short petioles and small flowers, but differs in the leaflets which increase in size from the base of the petiole.

There is in K the lectotype sheet for *S. oligoclada* (F. Muell.) Randell, on which appears a fragment of *S. curvistyla*, with the locality given as 'Upper Victoria River'.

Specimens examined

WESTERN AUSTRALIA: 19 miles N Sandy Creek, No 1 Rabbit Fence, *Royce 1679*, 15.v.1947 (PERTH); 20 miles N Sandy Creek, No 1 Rabbit Fence, *Royce 1682*, 15.v.1947 (PERTH); 7 miles W Mt Beadell, Gibson Desert, *George 5396*, 25.vii.1963 (PERTH); Sahara Track, 60 miles E Telegraph Line, *George 9160*, 1.viii.1967 (CANB, K, PERTH); Upper Rudall R., *George 10821*, 23.v.1971 (CANB, K, PERTH); Tanami Track, Great Sandy Desert, 2 km W of N.T. border, *Beaublehole 50994*, 21.v.1976 (PERTH); Edgar Ranges, *Kenneally 5642*, 13.viii.1976 (PERTH); *Kenneally 5613*, 12.viii.1976 (PERTH); 82 km ESE Telegraph Line, *George 14820*, 13.viii.1977 (CANB, DNA, K, PERTH).

NORTHERN TERRITORY: 30 miles SSW Wavehill Stn, *Perry 2208*, 21.vi.1949 (PERTH); 17 miles NE Lake Mackay, *Chippendale 3412*, 17.vi.1957 (DNA, PERTH); Campbell Ra., *Latz 2081*, 17.i.1972 (DNA, PERTH); Stuart Hwy, 100 km S Elliott, *Conrick 1171*, 28.viii.1982 (AD).



Plate 23. *S. curvistyla*. a. habit, b. pod, c. smallest petal abaxial surface, d. largest petal abaxial surface, e. anther group, all from *Conrick 1171*.

16. *S. cladophylla* (W. Fitzg.) Randell, comb. nov.

Basionym: *Cassia cladophylla* W. Fitzg., *J. Proc. Roy. Soc. W. Australia* 3: 147 (1918).

Lectotype: hills near the junction of the Hann and Barnett Rivers, *Fitzgerald s.n.*, 1905, PERTH! lectotype here designated; *isolectotype*: NSW (photo).

Syntypes: 1. Edkins Range, (as Erskines Range), E (Symon 1966); 2. Dillen's Springs, not located.

Synonym

C. oligoclada sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 106 (1966) p.p. as for *C. cladophylla* W. Fitzg.

Description

Herb or shrublet, c. 30 cm high, all vegetative parts pilose with erect pale hairs; *leaves* 30-50 mm long including petiole; *leaflets* 2-3 pairs, broad elliptic, 5-10 mm apart on the rachis, the largest 12-15 mm x 8-10 mm, increasing in size from the base of the rachis, apex obtuse mucronate, base rounded, slightly unequal, cuticular wax not obvious, midvein obscure above, prominent below; *glands* 1-2, stalked, elongate and pointed; *stipules* persistent, cordate or auriculate, to 6 mm x 6 mm; *petioles* terete, 5-8 mm long; *inflorescences* along the stem, 2-flowered; *peduncles* 25-30 mm long, usually longer than leaf; *bracts* caducous before anthesis; *pedicels* 10-12 mm long; *sepals* shorter than petals; *petals* glabrous, 6-8 mm long; *anthers* 10, subequal, on subequal filaments; *ovary* densely pilose; *Pods* short, 25-40 mm x 8 mm, flat, slightly curved, pilose, edges not crenate; *seeds* 4-8, transverse, shorter than pod is wide. Plate 24a-b.



Map 28. *S. curvistyla*.

Distribution and ecology

Grows in moist rocky soil in localised areas of northern Western Australia and Northern Territory. Map 29.

Notes

This species is distinguished by its conspicuous broad persistent stipules.

There is in K the lectotype sheet for *S. oligoclada* (F. Muell.) Randell, on which appears two fragments of *S. cladophylla*, with the locality given as 'Upper Victoria River'.

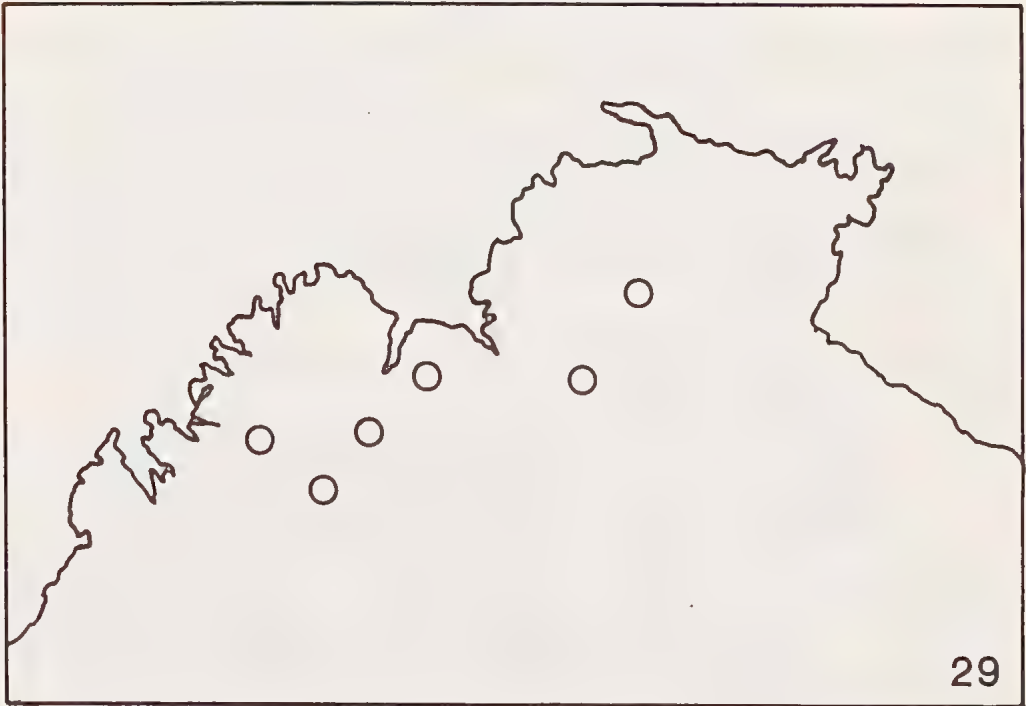
Specimens examined

WESTERN AUSTRALIA: 50 miles SW Wyndham Pumping Station, *Bennett 1766*, 19.v.1967 (PERTH); Packsaddle Creek, N. Carr Boyd Ranges, *Hartley 14343*, 7.iii.1978 (AD, CANB, PERTH); Dead Horse Spring, Lake Argyll, *Pullen 10673*, s.d. (PERTH Ref. Coll.).

NORTHERN TERRITORY: 50 miles SW Willeroo Hstd, *Chippendale 6841*, 9.v.1960 (PERTH); Victoria R., *Byrnes 714*, 7.v.1968 (AD); Edith Falls, *Henry 901*, 6.vii.1973 (AD, DNA).



Plate 24. *S. cladophylla*. a.habit, b. anthers, both from *Hartley 14343*.



Map 29. *S. cladophylla*.

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Firstly I must thank David Symon, who collected most of the important literature, and photographs of most of the type materials in overseas herbaria, for his 1966 revision. He very kindly made this material available to me, and it made my task much easier. I also thank Dr. H Toelken, for much editorial advice. My typists, Ms B. Burns and Mrs C. Robinson, coped valiantly with an unwieldy manuscript. Mrs B. Chandler produced an excellent series of illustrations. Many colleagues in a variety of institution listened patiently to my ideas on the nature of taxa in hybrid complexes, and redirected me when I strayed too far from the taxonomic pathway. To all these people, too many to mention individually, I express my sincere thanks.

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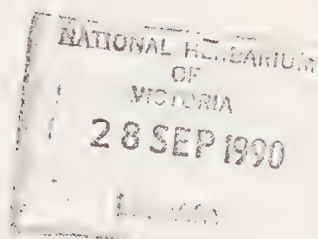
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REVISION OF THE CASSIINAE IN AUSTRALIA. 3. *SENNA* MILLER SECT. *SENNA**

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Abstract

In Australia, sect. *Senna* comprises 7 species, 5 native and 2 introduced, all previously treated within *Cassia* L. These are divided between two series, ser. *Pictae* having erect spike-like racemes, and ser. *Floridae* here transferred from sect. *Chamaefistula*. New combinations are provided for the four endemic species, *S. venusta* (F. Muell.) Randell, *S. notabilis* (F. Muell.) Randell, *S. magnifolia* (F. Muell.) Randell, and *S. pleurocarpa* (F. Muell.) Randell, and its two varieties var. *angustifolia* (Symon) Randell and var. *longifolia* (Symon) Randell.

Introduction

This is the third in a series of papers which will revise all members of the Cassiinae in Australia. The earlier paper dealing with *Senna* sect. *Psilorhegma* (Randell 1989) presented the results of many years analysis of known problems in cytology, breeding systems, hybrid swarms, morphological variability and taxonomy. However, in the rest of the Cassiinae, few such problems have been obvious, studies have been more restricted in time and financial resources, and as a consequence, revisions are less exhaustive in character. This is very obvious in the current publication, where field observations have been restricted, cytological records are few, and no studies of breeding systems have been attempted. Thus the current study applies classical morphological species concepts, and supports decisions of earlier workers (eg. Symon 1966) while making the new nomenclatural combinations required, following the recognition of *Senna* Miller as a separate genus.

Senna sect. *Senna*

Senna Miller sect. *Senna*, *Gard. Dict. abr. edn 4*, vol. 3 (1754), by implication.

Type species: *S. alexandrina* Miller, syn. *Cassia senna* L., the only species cited by Miller.

Synonyms

1. *Cassia* L. sect. *Senna* (Miller) DC. ex Colladon, *Hist. nat. med. Casses* 92 (1816).

Type species: as above.

2. *Cassia* [subgen. *Senna* (Miller) Benth.] sect. *Chamaesenna* DC. ex Colladon, *Hist. nat. med. Casses* 92 (1816), Benth. in Benth. and Hook., *Gen. pl.* 1(2): 572 (1865); in Mart., *Fl. Bras.* 15(2): 120 (1870); *Trans. Linn. Soc. London* 27: 538 (1871), p.p.

Type species: *C. reticulata* Willd. fide Irwin and Barneby, l.c. p. 456.

Description

Foliar glands usually 0. Corolla zygomorphic along its vertical axis; often several of the upper whorl of androecium filaments elongate, 2 latero-abaxial usually much longer, usually elevated sideways into a plane almost perpendicular to that of corolla symmetry; anthers all truncate or sometimes some produced into beaks, three adaxial reduced to staminodes, four

*Other papers in this series will be found in *J. Adelaide Bot. Gard.* 11(1): 19-49; and 12(2): 165-272.

median fertile or sterile, two latero-abaxial fertile, central abaxial often sterile and reduced; pods cylindrical, flat or winged (in one species), with coriaceous valves.

Two series are represented in Australia.

Key to the Australian series of sect. *Senna*

- Stipules amplexicaul or cordate, subpersistent; inflorescence a long axillary spike-like raceme, often apparently terminal; floral bracts often large subpersistent, imbricate, forming a cone-like inflorescence 1. ser. *Pictae*
- Stipules linear to setiform, caducous; inflorescence thyriform-paniculate, axillary or (by fusion with the stem) displaced shortly above the axil; floral bracts not large, persistent or imbricate; inflorescence not cone-like 2. ser. *Floridae*

1. Ser. *Pictae*

Senna Miller [sect. *Senna*] ser. *Pictae* (Benth.) Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 456 (1982).

Lectotype species: *Cassia picta* G. Don, *Gen. hist.* 2: 444 (1832), syn. *Senna pistaciifolia* (G. Don) Irwin and Barneby var. *picta* (G. Don) Irwin and Barneby, fide Irwin and Barneby l.c.

Synonyms:

1. *Cassia* L. sect. *Chamaesenna* DC. ex Colladon, *Hist. nat. med. Casses* 95 (1816) p.p.

Lectotype species: *C. reticulata* Willd., *Enum. pl.* 1: 443 (1809), syn. *Senna reticulata* (Willd.) Irwin and Barneby, fide Irwin and Barneby l.c.

2. *Cassia* L. [subgen. *Senna* (Miller) Benth. sect. *Chamaesenna* (DC. ex Colladon) Benth.] ser. *Pictae* Benth. in Mart., *Fl. Bras.* 15(2): 126 (1870).

Lectotype species: *C. picta* G. Don, fide Irwin and Barneby l.c., as above.

3. *Cassia* sect. *Herpetica* DC. ex Colladon, *Hist. nat. med. Casses* 91 (1816).

Lectotype species: *Cassia alata* L., *Sp. pl.* 378 (1753); syn. *Senna alata* (L.) Roxb., *Fl. ind. edn* 2: 349 (1824), fide Raf., *Sylva tellur.* 123 (1838).

4. *Herpetica* (DC. ex Colladon) Raf., *Sylva tellur.* 123 (1838).

Type species: *Cassia alata* L. syn. *Senna alata* (L.) Roxb., l.c. p. 349, fide Raf., l.c., as above.

5. *Chamaesenna* Pittier, *Arb. legum.* 130 (1928).

Lectotype species: *Chamaesenna reticulata* (Willd.) Pittier, fide Britton and Rose, *N. Amer. Fl.* (1930); syn. *Senna reticulata* (Willd.) Irwin and Barneby l.c. p. 456.

6. *Cassia* [subgen. *Senna* (Miller) Benth.] sect. *Chamaesenna* sensu Symon, *Trans. Roy. Soc. S. Australia* 90: 76 (1966), non DC. in Colladon. This concept used by Symon included ser. *Floridae* as recognised here. No type species was recognised.

Description

As for the section with the following additional characters (Irwin and Barneby 1982) — stipules amplexicaul or caudate; inflorescences racemose, sometimes spike-like, 10-70 flowered, the buds often subtended by enlarged, imbricate, coloured bracts; seeds oblong to obovate; seed testa smooth or rugulose.

Distribution

A group with 8 species in the Americas, 4 in Australia, and several in Africa. It thus contrasts with sect. *Psilorhegma*, which is restricted to Australia and the Pacific region, but parallels the distribution of species within sect. *Chamaecrista* (Irwin and Barneby 1982).

At least one African and one American species are now widely cultivated and/or weedy in both the Americas and Australia.

Key to the species of ser. *Pictae* in Australia

1. Floral bracts dark brown or black*5. *S. didymobotrya*
1. Floral bracts yellow or green:
 2. Pod 10-12 cm long, dark, with lateral wings*6. *S. alata*
 2. Pod 2.5-10 cm long, without lateral wings:
 3. Leaves obviously hairy:
 4. Floral bracts pubescent, acuminate, foliose, caducuous, green 2. *S. notabilis*
 4. Floral bracts glabrous, obtuse, stramineous, persistent, yellow 3. *S. venusta*
 3. Leaves not obviously hairy:
 5. Leaflets emarginate, broad-oblong, 2.5-5 cm wide 4. *S. magnifolia*
 5. Leaflets obtuse to emarginate, linear to elliptic, never more than 2 cm wide 1. *S. pleurocarpa*

1. *S. pleurocarpa* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia pleurocarpa* F. Muell., *Fragm.* 1: 223 (1859); Benth., *Fl. Austral.* 2: 284 (1864); *Trans. Linn. Soc. London* 27: 552 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 98 (1966).

Lectotype: In thickets towards the mouth of the River Murchison, Western Australia, A. Oldfield s.n., s.d., MEL (photo)!, lectotype here designated; *isolecto.*: K (photo), PERTH (not seen, cited Symon 1966).

Description

Spreading shrubs 50-75 cm tall; *leaves* 8-12 cm long; *leaflets* 5-12 pairs, linear to elliptic, 15-20 mm apart on the rachis, the largest 3-6 cm x 5-15 mm, all even in size, apex obtuse or emarginate, base acute and equal-sided, glabrous, veins impressed above and conspicuous below, dull olive; *stipules* acicular, glabrous, caducous; *petiole* 2-4 cm long; *inflorescence* 11-25 cm long, bearing 20-60 flowers in a cone-like head; *peduncle* 2-8 cm long; *pedicel* 10-25 mm long; *bracts* oval, 12-15 mm long, subpersistent; *sepals* lanceolate, c. 10 mm long; *petals* obovate, 15 mm long, venation conspicuous, yellow; *androecium* of 10 anthers, 3 adaxial reduced and sterile, 4 median fertile and 5 mm long, 2 latero-abaxial fertile and 10 mm long, 1 central abaxial fertile and 3 mm long; *filaments* subequal, c. 1 mm long; *ovary* glabrous; *fruiting pedicel* 10-25 mm long; *pod* 3.5-7 cm x 8-12 mm, flat, the valves with a median lateral ridge over the seeds; *seeds* oblong, c. 7 mm long, rugose, with very short areole, dark brown. Plate 1 a-h.

Notes

In this and all future descriptions, the character *peduncle* refers to the length of the axis below the lowest flower.

3 varieties are recognised.

Key to the varieties of *S. pleurocarpa*

1. Leaflets 5-9 pairs:
 2. Bracts oval, obtuse, to 12 mm long, caducous; leaflets 5-7 pairs 1. var. *pleurocarpa*
 2. Bracts oval to acute, acuminate, to 15 mm long, subpersistent; leaflets 8-9 pairs 2. var. *angustifolia*
1. Leaflets 11-12 pairs 3. var. *longifolia*

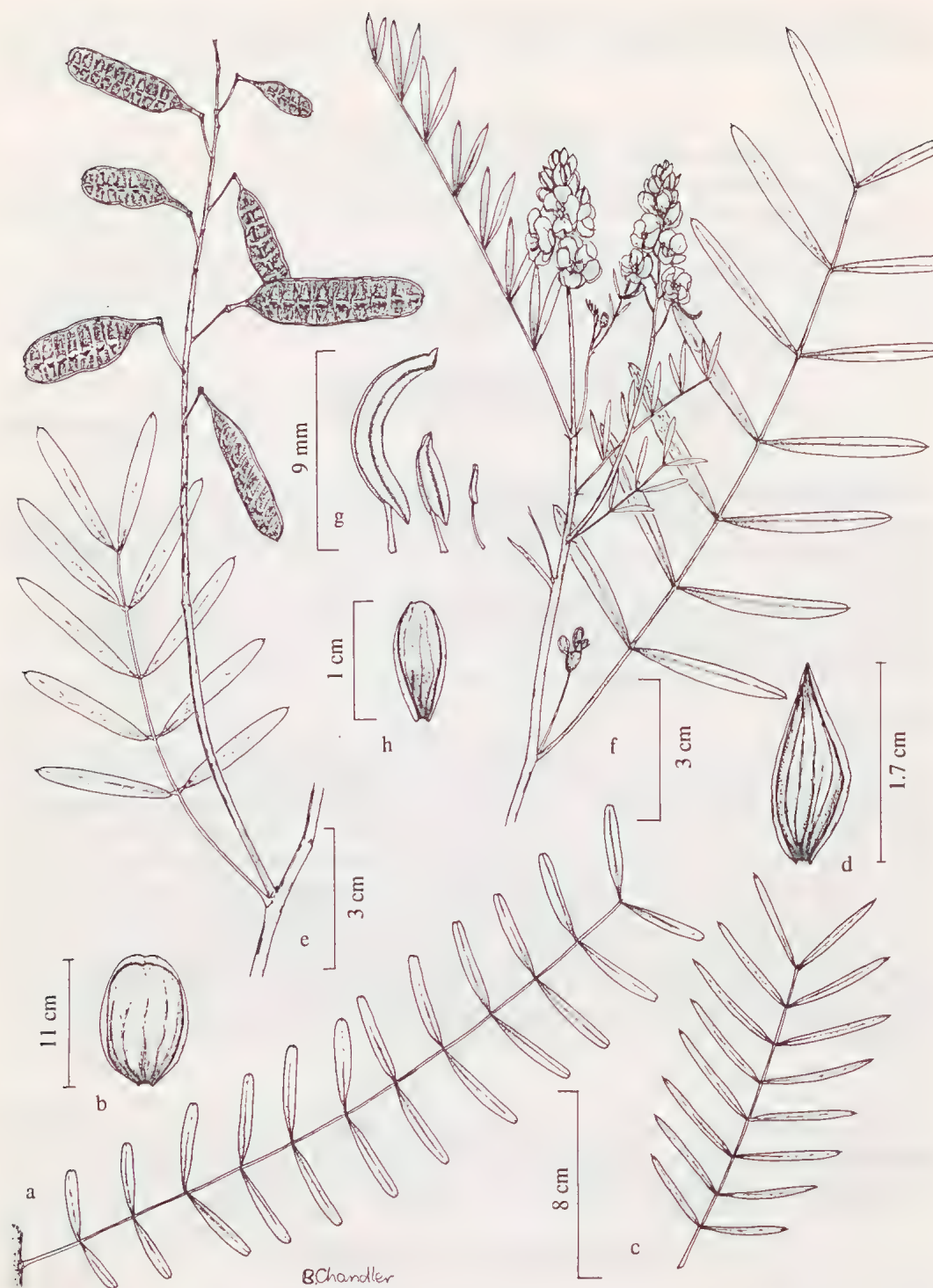


Plate 1. *S. pleurocarpa*. a-b, var. *longifolia*; a, leaf; b, bract, both from *Bumbiens s.n.* (AD); c-d, var. *angustifolia*; c, leaf; d, bract, both from *Phillips 012101* (AD); e-h, var. *pleurocarpa*; e, habit, *Symon 23497* (AD); f, habit, *Chippendale 1626*; g, anthers; h, bract, both from *Symon 2155* (AD).

1.1 var. *pleurocarpa*.

Basionym and lectotype: as for the species.

Description

Leaflets 5-7 pairs, the largest 3-6 cm x 5-12 mm; *bracts* oval, 12 mm long; *Pods* 3.5-7 cm x 8-12 mm wide. Plate 1e-h.

Distribution and ecology

Widespread especially in disturbed habitats, over semi-arid areas of all mainland states except Victoria. Purgative to stock (Symon 1966). Map 1.

Selection of specimens examined (c. 100 seen)

WESTERN AUSTRALIA: Mt Squires, Barrow Ra., *Helms s.n.*, 27.viii.1891 (AD); 40 miles E Meekatharra, *Speck 782*, 10.ix.1957 (CANB); 10 miles S of W end Hopkins Lake, *Symon 2358*, 2.viii.1962 (AD); 38.4 miles E Meekatharra on Wiluna rd, *Ashby 4783*, 28.viii.1973 (PERTH).

NORTHERN TERRITORY: Andado Bore, 240 km SSE Alice Springs, *Crocker s.n.*, 6.vi.1939 (AD); summit, Ayres Rock, *Schodde 403*, 30.viii.1957 (AD); Chambers Pillar, c. 130 km S Alice Springs, *Lothian 4569*, 23.vii.1968 (AD); 16 km ESE Mulga Park Hstd, *Munir 5100*, 21.viii.1973 (AD).

QUEENSLAND: 20 km SE Arrabury Hstd, *Lothian 673*, 29.viii.1960 (AD); Tambar, SW Windorah, *Browning s.n.*, -ix.1966 (AD).

NEW SOUTH WALES: nr Fort Grey, *MacGillivray s.n.*, -viii.1921 (AD):

SOUTH AUSTRALIA: Cariewerloo Stn, 35 miles W Pt Augusta, *Higginson s.n.*, 3.ix.1955 (AD); 3 miles S Maralinga, *Forde 628*, 10.x.1956 (AD, CANB); 40 miles S Ernabella, *Turvey s.n.*, 5.vii.1964 (AD); Great Victoria Desert, c. 40 km W Vokes Hill, *Symon 12505A*, 23.viii.1980 (AD).

1.2 var. *angustifolia* (Symon) Randell, comb. nov.

Basionym: *Cassia pleurocarpa* var. *angustifolia* Symon, *Trans. Roy. Soc. S. Australia* 90: 99 (1966).

Holotype: Coolgardie, Western Australia, *E. Kelso s.n.*, Oct. 1900, PERTH (photo); *iso*: K not seen.

Description

Leaflets 8-10 pairs, the largest 5-7 cm x 5-8 mm wide; *bracts* 15 mm long, acuminate; *Pods* to 7 cm long x 15 mm wide. Plate 1c,d.

Distribution

Restricted to subtropical semi-arid areas of Western Australia. Map 2.

Selection of specimens examined (15 seen)

WESTERN AUSTRALIA: c. 72 km W from Knutsford, c. 120 km NW Southern Cross, *Helms s.n.*, 10.xii.1891 (AD); Hayden Rock, Dirk Hartog Is., *Eardley s.n.*, 7.x.1934 (AD); 74 miles N Norseman towards Coolgardie, *Phillips s.n.*, 11.ix.1962 (AD, CANB); Hammersley Ra. Natl Pk, *Jackson 2934*, 19.viii.1977 (AD); 50 km from Leonora towards Menzies, *Hos 48A/8*, 20.ix.1977 (PERTH).

1.3 var. *longifolia* (Symon) Randell, comb. nov.

Basionym: *Cassia pleurocarpa* var. *longifolia* Symon, *Trans. Roy. Soc. S. Australia* 90: 99 (1966).

Holotype: Mungalalla, Queensland, *C.E. Hubbard 6076* and *C.W. Winders*, 1.i.1931, BRI (photo); *iso*: K (not seen).

Description

Leaflets 10-12 pairs, the largest to 5 cm long x 8 mm wide; *bracts* oval, 15 mm long, obtuse to acute; *Pods* as for var. *angustifolia*. Plate 1a,b.

Distribution

Known only from the central west of Queensland. Map 2.

Specimens examined

QUEENSLAND: Charleville, *MacGillivray s.n.*, 26.viii.1923 (AD); Charleville, *Smith s.n.*, 17.iv.1932 (AD); cult., Adelaide (seed ex. *Smith s.n.*), *Bumbiens s.n.*, 8.x.1963; and *Symon s.n.*, 25.v.1965 (both AD).

2. *S. notabilis* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia notabilis* F. Muell., *Fragm.* 3: 28 (1862); Benth., *Fl. Austral.* 2: 284 (1864); *Trans. Linn. Soc. London* 27: 551 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 97 (1966).

Holotype: between the Bonney River and Mt Morphett, Northern Territory, *J. McD. Stuart s.n.*, March 1862, MEL (photo).

Description

Annual subshrub to tall shrub, 0.3-1.5 m tall, hairy in all parts; *leaves* 10-20 cm long, including petiole; *leaflets* 6-12 pairs, lanceolate, 10-15 mm apart on the rachis, the largest 15-30 x 8-12 mm, all even in size or the terminals slightly longer, apex acute to aristate, base obtuse unequal, hairs short and dense on both sides, only lower midveins conspicuous, concolourous; *stipules* ovate, long aristate, 2 mm wide, persistent, green; *petiole* 15-20 mm long; *inflorescence* 10-20 cm long, bearing 20-30 flowers in a cone-like head; *peduncle* 2.5-6 cm long; *pedicel* 5 mm long; *bracts* leafy, pubescent, acuminate to aristate, imbricate, caducous by anthesis, green; *sepals* subequal, c. 6 mm long, pubescent, yellow; *petals* obovate, subequal, c. 7 mm long, with distinct veins, yellow; *androecium* of 10 anthers, 3 adaxial sterile and reduced, 4 median fertile and c. 2 mm long, 2 latero-abaxial fertile larger and c. 3 mm long, 1 central abaxial fertile and reduced to 2 mm long; *filaments* subequal, c. 1 mm long; *ovary* glabrous; *fruiting pedicel* 8-10 mm long; *pod* 2.5-4.0 cm x 10-15 mm, golden brown, darker over seeds; *seeds* oblong, c. 4 mm long. Chromosome number $n=14$, (Randell 1970). Plate 2a-e.

Distribution and ecology

Grows in sand, clay or on rocky hillsides, often with *Triodia* species. Widespread in northern arid areas of Western Australia, Northern Territory, Queensland, New South Wales and South Australia. Map 3.

Notes

Shares with *S. venusta* the distinction of having small foliar glands.

Selection of specimens examined (c. 100 seen)

WESTERN AUSTRALIA: from Eva Downs to Ashburton Ra., *Dittrich s.n.*, -ix.1886 (AD); 8 miles N Liveringa Stn, Kimberleys, *Lazarides 6465*, 1.viii.1959 (AD); 20 km SE Balfour Downs Hstd, *Wilson 10367*, 10.viii.1971 (PERTH); Peedamulla, *Pfeiffer 12*, 19.vii.1977 (PERTH); 146 km from Derby, *Conrick 1044*, 17.viii.1982 (AD).

NORTHERN TERRITORY: Fraser Ck near MacDonald Downs, *Cleland s.n.*, 30.viii.1930 (AD); between Barrow Ck and Wauchope, *Hill and Caulfield s.n.*, -vii.1953 (AD); 5.1 miles W Anitowa Hstd, *Chippendale s.n.*, 23.x.1956 (AD); 11 miles SE Yuendumu, *Barlow 1140/6*, 18.v.1967 (AD); 9 miles W Baines River East, *Symon 5233*, 18.vi.1967 (AD).

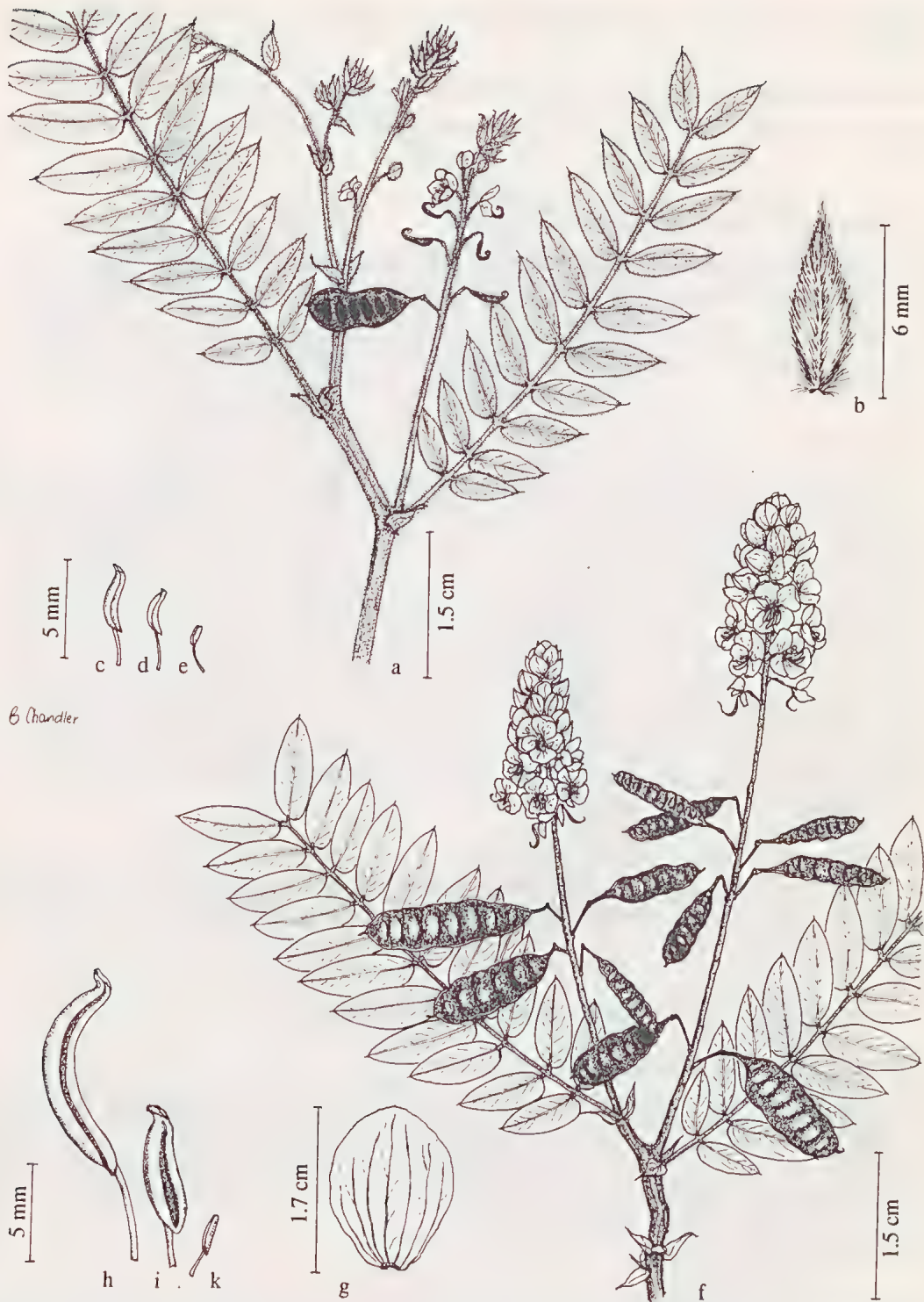


Plate 2. a-e, *S. notabilis*. a, habit; b, bract; c, largest anther; d, median anther; e, staminode, all from *Ashby 2937* (AD), pod from *Jackson 2905* (AD); f-k, *S. venusta*; f, habit; g, bract; h, largest anther; i, median anther; k, staminode, all from *Jackson 3005* (AD).

QUEENSLAND: between Boulia and Dajarra, *MacGillivray s.n.*, -viii.1928 (AD); 100 miles S Normanton, *Barlow 299*, 11.viii.1961 (AD); Tanbar, SW of Windorah, *Browning s.n.*, -ix.1966 (AD); Mt Isa, *Coveny 471*, 14.viii.1968 (AD).

NEW SOUTH WALES: between 37 and 39 miles S Barradale, *Ashby 4679*, 16.ix.1972 (AD).

SOUTH AUSTRALIA: 55 km S Cordillo Downs Hstd, *Warnes 56*, 7.viii.1973 (AD); Innaminka, *Lewis s.n.*, 29.x.1976 (AD).

3. *S. venusta* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia venusta* F. Muell., *Fragm.* 1: 165 (1859); Benth., *Fl. Austral.* 2: 284 (1864); *Trans. Linn. Soc. London* 27: 551 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 97 (1966).

Lectotype: 'in terra Arnheim's Land et circum sinum Carpentariae ad ripas aridiores, rupes et scopulos', Northern Territory, *F. Mueller s.n.*, 22.vii.1856, K (photo), lectotype here designated; iso: MEL!

Description

Shrubs to 2 m tall; *leaves* 10-35 cm long, including petiole; *leaflets* 6-15 pairs, oblong to ovate, 15-30 mm apart on the rachis, the largest 3-8 cm x 10-35 mm, almost all equal in size but the central leaflets slightly larger, apex obtuse with a mucro 2 mm long, base slightly cordate, hairs moderately dense to absent on both surfaces, veins impressed above and conspicuous below, olive green; *stipules* cordate, glabrous, persistent; *petiole* 10-30 mm long, grooved above; *inflorescence* 15-40 cm long, bearing 15-40 flowers in a cone-like head; *peduncle* 4-8 cm long; *pedicel* 12-15 mm long; *bracts* obovate, obtuse, scarious, glabrous, persistent, yellow; *sepals* lanceolate, 12 mm long; *petals* obovate, 15 mm long, emarginate, yellow; *androecium* of 10 anthers, 3 adaxial reduced and sterile, 4 median fertile 5 mm long, 2 latero-abaxial fertile 12 mm long, 1 central abaxial fertile and reduced to 5 mm long; *filaments* 4 median 2 mm long, 2 latero-abaxials 3 mm long; *ovary* glabrous; *fruiting pedicel* 15-20 mm long; *pod* 4-8 cm x 9-14 mm, golden brown, with c. 8 seeds; *seeds* obovate, c. 6 mm long, rugose, areole small, dark brown. Plate 2f-k.

Distribution and ecology

Grows in sand on gravel or in lateritic soils, often with *Triodia* species. Widespread in arid areas of northern Western Australia and Northern Territory, few collections in north-western Queensland. Map 4.

Notes

Shares with *S. notabilis* the distinction of having foliar glands.

Selection of specimens examined (c. 40 seen)

WESTERN AUSTRALIA: Kimberley Research Stn, *Langfield 196*, 14.ii.1950 (PERTH); 82 miles SE Pt Hedland towards Marble Bar, *Beaulehole s.n.*, 11.viii.1965 (AD); New York Jump-ups, c. 90 km SW Wyndham, *Jackson 885*, 20.v.1967 (AD); head of Breadon valley, Southesk Tablelands, *George 15501*, 29.iv.1979 (PERTH).

NORTHERN TERRITORY: 3.5 miles S Elliot, *Chippendale s.n.*, 11.ix.1957 (AD); 56 km N Tennant Ck, *Orchard 890*, 19.vii.1968 (AD); 41.2 km from Hermansburg Mission, *Williams 12120*, 6.x.1981 (AD); Wauchope, c. 340 km N Alice Springs, *Caulfield and Hill s.n.*, - vii.1983 (AD).

QUEENSLAND: 1 mile E Wernadinga Stn, *Symon 4994*, 31.v.1967 (AD).

4. *S. magnifolia* (F. Muell.) Randell, comb. nov.

Basionym: *Cassia magnifolia* F. Muell., *Fragm.* 1: 166 (1859); Benth., *Fl. Austral.* 2: 283 (1864); *Trans. Linn. Soc. London* 27: 551 (1871); Symon, *Trans. Roy. Soc. S. Australia* 90: 96 (1966).

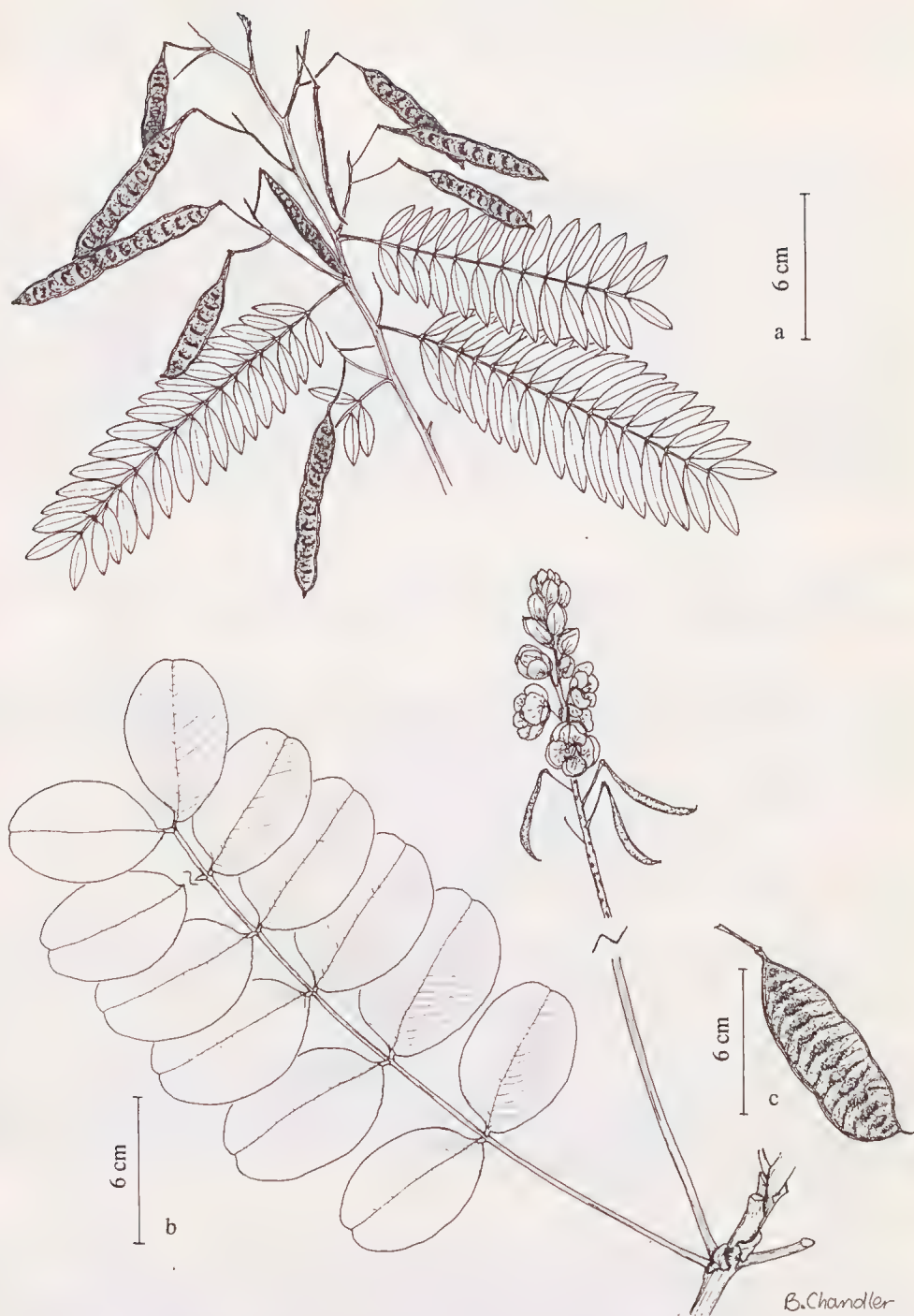


Plate 3. a, *S. timoriensis*, habit, Dunlop 4262 (AD); b-c, *S. magnifolia*; b, habit; c, pod, both from Symon 12115 (AD).

Lectotype: 'rocky ridges, upper Gilbert River, northern Queensland, altitude 1000 ft.', *F. Mueller s.n.*, s.d. There are in K, 2 sheets (both seen in photos), one of a single leaf with 3 dissociated pods, the other of a leafy terminal shoot and a dissociated flowering stalk bearing one pod. The leafy terminal shoot is here designated as the lectotype, with the single leaf as an isotype.

Description

Low shrubs 1-1.5 m tall; *leaves* to 30 cm long including the petiole; *leaflets* 4-6 pairs, broad-oblong to orbicular, 25-45 mm apart on the rachis, the largest 5-8 x 3-5 cm, slightly increasing in size from the base of the rachis, apex emarginate, base unequal and slightly attenuate, glabrous on both sides, veins impressed above and conspicuous below, olive green; *stipules* cordate, acute to acuminate, subpersistent; petiole 8-10 cm long; *inflorescence* 30-60 cm long, bearing 20-60 flowers in a cone-like head; *peduncle* 10-15 cm long; *pedicel* 12-15 mm long; *bracts* oblong, obtuse but apiculate, yellow-brown; *sepals* narrow to broad lanceolate, unequal, 10-12 mm long; *petals* obovate, emarginate, unequal, 10-17 mm long, yellow; *androecium* of 10 stamens, 3 adaxial sterile and reduced, 4 median fertile 3-4 mm long, 2 latero-abaxial fertile 8-10 mm long, 1 central abaxial fertile 3-4 mm long; *filaments* 1-2 mm long; *ovary* glabrous; *fruiting pedicel* 20 mm long, robust; *pod* 8-10 cm x 3-4 cm, flat, dark, with 8-10 seeds; *seeds* obovate, c. 8 mm long, rugose, with small areole, dark brown. Plate 3b,c.

Distribution and ecology

Grows on stony hillsides. Disjunct distribution in Victoria River area of Western Australia/Northern Territory and highlands on north Queensland. Map 5.

Specimens examined

WESTERN AUSTRALIA: 4 miles NNE Margaret R. Stn, *Lazarides* 6335, 14.vii.1959 (AD, MEL); 40 km NW Louisa Downs Stn, *Shaw* 839, 30.v.1967 (AD); c. 110 km E Halls Ck on Wave Hill rd, *Beaglehole* 51250, 23.v.76 (AD, MEL).

NORTHERN TERRITORY: Newcastle Ra., *Armit* 271, 1876 (MEL).

QUEENSLAND: Tait R., *Weld Birch s.n.*, 1892 (MEL); 19 miles E Georgetown, *Symon* 4903, 27.v.1967 (AD).

*5. *S. didymobotrya* (Fresen.) Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 467 (1982).

Basionym: *Cassia didymobotrya* Fresen., *Flora* 22: 53 (1839); Oliver, *Fl. Trop. Africa* 2: 276 (1871); Benth., *Trans. Linn. Soc. London* 27: 551 (1871); De Wit, *Webbia* 11: 241 (1955); Symon, *Trans. Roy. Soc. S. Australia* 90: 95 (1966); Brenan, *Fl. Trop. East Africa* 66 (1967); Isley, *Mem. New York Bot. Gard.* 25: 80 (1975).

Type: The type collection was made by Ruppel in Abyssinia. No material survives in the herbarium FR (Irwin and Barneby, l.c.) but apparently there has been no attempt to designate a lectotype or neotype. A neotype is definitely needed, preferably chosen from material annotated by Oliver or Benth. The concept described in detail by Oliver (1871) has been used by all later workers, and is followed here.

Description

In cultivation a tall vigorous shrub to 2.5 m tall, with stems and petioles densely pale hairy; *leaves* 10-25 cm long, including petiole; *leaflets* 8-10 pairs, oblong, 10-20 mm apart on the rachis, the largest 2-6 cm x 10-20 mm, subequal in size but the terminals slightly larger, apex acute to obtuse and mucronate, base acute to obtuse, hairs sparse on the lower surface but denser over the veins, veins obscure or impressed above and prominent below, olive green;

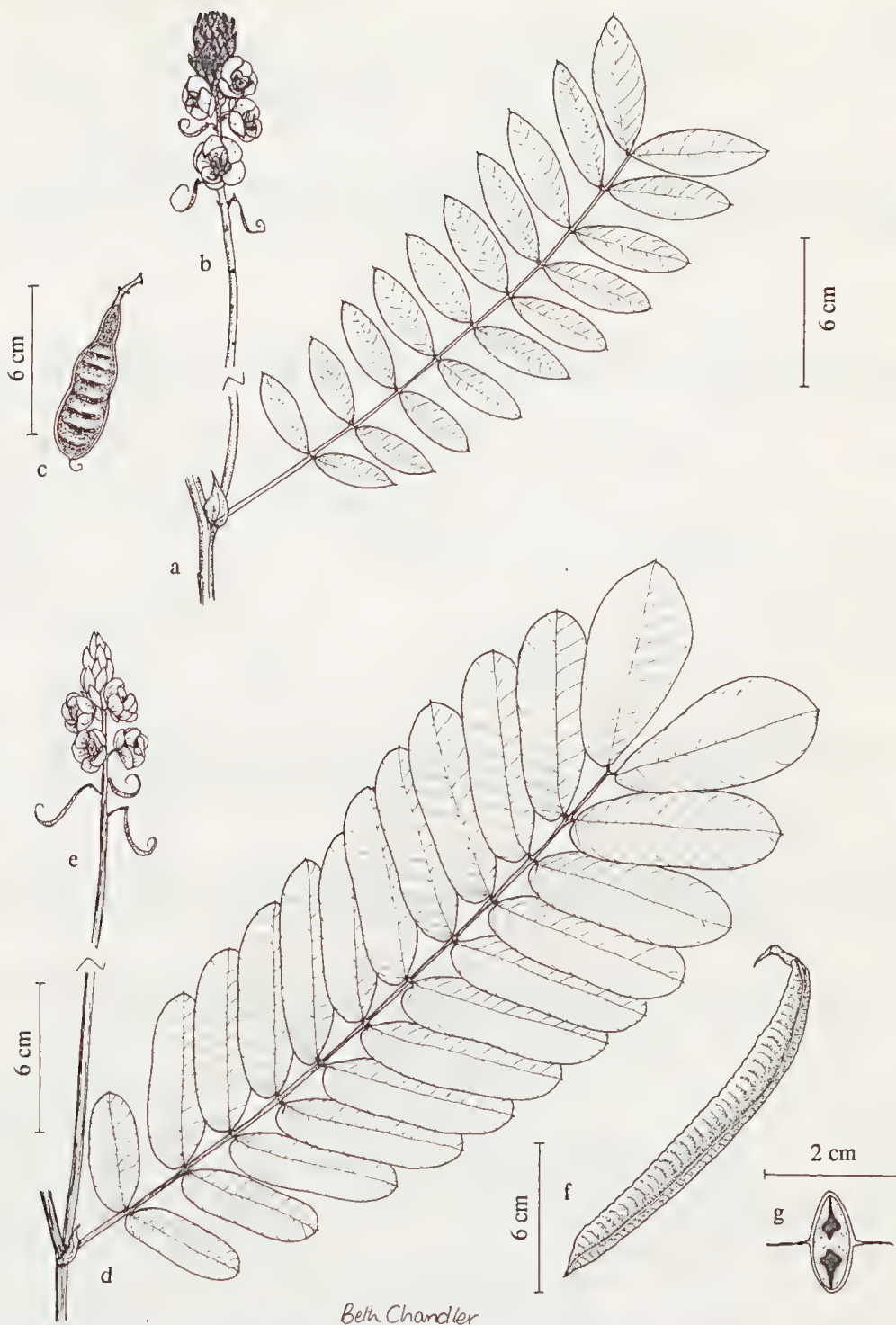


Plate 4. a-c, *S. didymobotrya*; a, leaf from Symon 21872 (AD); b, inflorescence; c, pod, both from Wright 5782 (AD); d-g, *S. alata*; d, leaf from Cilento s.n. (AD); e, inflorescence; f, pod; g, transverse section of pod, all from Symon 5151 (AD).

stipules cordate, stem-clasping, long acuminate, ciliolate, subpersistent; *petiole* 15-40 mm long; *inflorescence* 20-40 cm long, bearing 15-30 flowers in a cone-like head; *peduncle* 5-7 cm long; *pedicel* 6-8 mm long; *bracts* obtuse, pointed, imbricate caducous, dark-brown or black; *sepals* subequal, oblong, 10-12 mm long; *petals* obovate, to 20 mm long, clawed, with conspicuous veins, yellow; *androecium* of 10 anthers, 7 adaxial reduced and sterile, only the 2 latero-abaxial fertile and c. 10 mm long, central abaxial sterile; *filaments* subequal 1-2 mm long; *ovary* densely golden pubescent; *fruiting pedicel* 6-8 mm long, robust; *pod* to 7 cm long, to 18 mm wide, with about 15 ovules; *seeds* not seen, described by Brenan (1967) as oblong, c. 8 mm long, and by De Wit (1955) and Irwin and Barneby (1982) as smooth or obscurely pitted. Plate 4a-b.

Distribution and ecology

Native to northern Africa, widely cultivated in tropical areas around the world. In Australia, I have seen it sparsely naturalised in Queensland and New South Wales in disturbed areas such as roadsides.

Notes

The distinctive dark colour of the bracts noted by Symon (1966), Isley (1975), and Irwin and Barneby (1982), was not described by earlier workers, and may be a feature which has become obvious since the plant was taken into cultivation.

Specimens examined

QUEENSLAND: Childers, *Durrington 138*, 16.vii.1970 (MEL).

SOUTH AUSTRALIA: cult. Waite Institute Arboretum, *Wright s.n.*, 19.iv.1940 (AD).

*6. *S. alata* (L.) Roxb., *Fl. ind. edn* 2: 349 (1824).

Type: Herbarium Cliffortensis 158, *Cassia* no. 33, BM. This plant was considered as a syntype by Brenan (1967), and as the holotype by Irwin and Barneby (1982), but its status is now being reassessed (Reveal, pers. comm.).

Selected synonyms and references [for full listing see Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 460 (1982)].

Cassia alata L., *Sp. pl.* 378 (1753); Benth., *Trans. Linn. Soc. London* 27: 550 (1871); De Wit, *Webbia* 11: 231 (1955); Symon, *Trans. Roy. Soc. S. Australia* 90: 95 (1966); Brenan, *Fl. Trop. East Africa* 64 (1967); Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 460 (1982).

Description

Low spreading shrub, usually less than 1 m tall, stem hairy; *leaves* 15-40 cm long including *petiole*; *leaflets* 8-12 pairs, oblong, 10-20 mm apart on the rachis, the largest 8-11 x 3-5.5 cm, increasing in size from the base of the rachis but the subterminals the longest, apex obtuse to emarginate and mucronate, base unequal and larger on rachis side, hairs sparse on the lower midrib, veins impressed above and prominent below, olive green; *stipules* cordate, stem-clasping, subpersistent; *petiole* 20-40 mm long; *inflorescence* 30-60 cm long, bearing 20-40 flowers in a cone-like head; *peduncle* 15-30 cm long; *pedicel* 5-8 mm long; *bracts* boatshaped, acute, imbricate, caducous, orange; *sepals* subequal, glabrous; *petals* to 20 mm long, clawed, with conspicuous veins, yellow; *androecium* of 10 anthers, 7 adaxial reduced and sterile, only 2 latero-abaxial fertile and 4 mm long, central abaxial sterile; *filaments* unequal, 4 median 2 mm long, 3 abaxial 4 mm long; *ovary* sparsely hairy; *fruiting pedicel* 15 mm long, robust; *pod* 12-16 cm x 10-15 mm, each valve with a median wing c. 6 mm wide and projecting horizontally, seeds in 2 rows; *seeds* trapzoid, c. 6 mm long. Plate 4c-e.

Distribution and ecology

Native to the Orinoco and Amazon basins of South America, but now widely naturalised throughout the world tropics (Irwin and Barneby, l.c.). In Australia, restricted to far north of Queensland and Northern Territory. Map 5.

Specimens examined

NORTHERN TERRITORY: Darwin, *Cilento s.n.*, -ix.1923 (AD); 10 miles SW Jim Jim crossing, *Symon 5151*, 11.vi.1967 (AD).

QUEENSLAND: Buchan Pt, *Morris 6427*, 4.xi.1939 (AD); Quintel Ck Beach, Lloyd Bay, *Robertson s.n.*, 19.viii.1986 (AD).

2. Ser. *Floridae*

Senna Miller [sect. *Senna*] ser. *Floridae* (Benth.) Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 97 (1982).

Lectotype species: *Cassia siamea* Lam., *Encycl.* 1(2): 648 (1785); syn. *C. floridae* Vahl, *Symb. bot.* 3: 57 (1794); syn. *Senna siamea* (Lam.) Irwin and Barneby, fide Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 97 (1982).

Synonyms

1. *Cassia* L. [sect. *Chamaesenna* DC. ex Colladon] ser. *Floridae* Benth. in Mart., *Fl. Bras.* 15(2): 124 (1870); *Trans. Linn. Soc. London* 27: 547 (1871).

Lectotype species: as above.

2. *Sciacassia* Britton ex Britton and Rose, *N. Amer. Fl.* 23(4): 252 (1930).

Lectotype species: *Sciacassia siamea* (Lam.) Britton and Rose, syn. *Senna siamea* (Lam.) Irwin and Barneby.

3. *Senna* Miller [sect. *Chamaefistula* DC. ex Colladon] ser. *Floridae* (Benth.) Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 97 (1982). [Reasons for this transfer are given in Randell 1988].

Description

As for the section with additional characters (Irwin and Barneby 1982) — stipules linear setiform and subulate, caducous; inflorescences thyrsiform-paniculate, 10-100 flowered; bracts elliptic; seeds subdiscoid; seed testa smooth and lustrous.

Distribution

A series of only three species, the type species *S. siamea* reportedly native to Burma and Thailand, *S. garrettiana* in Indochina (Irwin and Barneby 1982), and *S. timoriensis* occurring in SE Asia generally, Malesia and Australia (de Wit 1955). The distribution of the series is thus similar to that of sect. *Psilorhegma* (Randell 1989).

7. *S. timoriensis* (DC.) Irwin and Barneby, *Mem. New York Bot. Gard.* 35: 98 (1982).

Holotype: Timor, *s. coll.*, Musee de Paris 1821, seen in microfiche (exposure 33459, Prodromi Herbarium, IDC microedition).

Synonyms (partly after de Wit 1955):

1. *Cassia timoriensis* DC., *Prodr.* 2: 499 (1825); Benth., *Trans. Linn. Soc. London* 27: 550 (1871); De Wit, *Webbia* 11: 273 (1955); Symon, *Trans. Roy. Soc. Australia* 90: 94 (1966).

Holotype: as above.

2. *Cassia exaltata* Reinw. ex Blume, *Catalogus* 68 (1823); Spanoghe, *Linnaea* 15: 201 (1841); *nomen nudum*.

3. *Senna glauca* Roxb., *Fl. ind. edn* 2: 351 (1832) equated with *S. timoriensis* by Irwin and Barneby l.c. 78; non *Cassia glauca* Lam. *Encycl.* 1: 647 (1785).

Type: not located.

4. *Cassia arayatensis* Llanos, *Fragm. pl. Filip.* 71 (1851); F. -Vill. & Naves in Blanco, *Fl. Filip.* edn 3(4): 55 (1880); Merrill, *Sp. blancoan.* 173 (1918).

Type: not designated.

5. *Cassia laxiflora* Benth., *Fl. Austral.* 283 (1864); *Trans. Linn. Soc. London* 27: 550 (1871).

Lectotype: Arnhem North Bay [Melville Bay, N.T.], R. Brown 4255, 14.ii.1803, BM (photo), (bearing a Type label, but not clear by whom identified as such), *lectotype* here designated; syntypes BRI!, K (2 sheets, photos), MEL (2 sheets!, photos), E, NSW, P, (cited by Symon 1966) not seen.

6. *Cassia montana* Naves in Blanco, *Fl. Filip.* edn 3: t. 452 (1880); Merrill, *Sp. Blanc.* 173 (1918); non Heyne.

Type: not designated.

Description

Shrub to 2 m tall, stems with short appressed hairs, and longer erect hairs; *leaves* 15-17 cm long, including petioles; *leaflets* 15-18 pairs, lanceolate, 5-7 mm apart on the rachis, the largest 3.5-4.5 cm x 6-8 mm wide, largest in the centre of the rachis and decreasing towards both base and apex of rachis, apex obtuse mucronate, base obtuse, hairs pale on lower midrib and margins, veins obscure above and conspicuous below, olive green above and paler below; *petiole* 10-15 mm long; *stipules* acicular, caducous; *peduncle* 10-20 mm long, bearing 8-10 flowers; *pedicel* 15-20 mm long; *bracts* elliptic, pubescent, subpersistent; *sepals* elliptic, 4-5 mm long, pubescent, green; *petals* to 8 mm long, yellow; *androecium* of 10 stamens, 3 adaxial very reduced and sterile, 4 median fertile and c. 4 mm long, 2 latero-abaxials fertile and c. 6 mm long, one central abaxial fertile and 4 mm long; *filaments* all short; *ovary* short, pubescent, with 15-20 ovules; *fruiting pedicel* 15-20 mm long; *pod* 7-9 cm x 7-10 mm, apiculate, with 12-15 seeds, rich brown; *seeds* squarish; c. 5 mm long, smooth, with linear areole, dark olive green. Plate 3a.

Distribution and ecology

Scattered in sclerophyll woodland of northern Western Australia, Northern Territory and Queensland. Rarely recorded as flowering in the first year after germination. Map 6.

Specimens examined

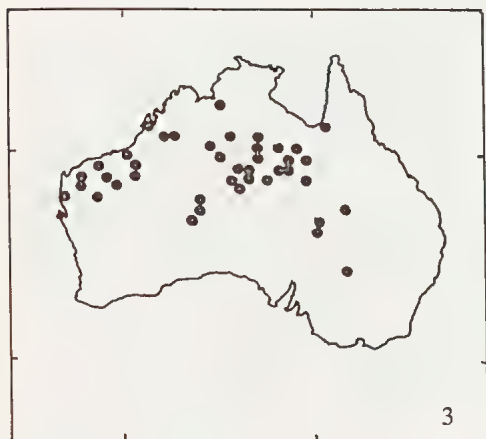
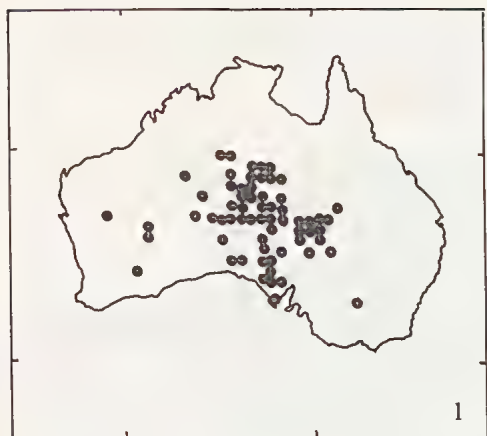
WESTERN AUSTRALIA: 14 miles SW Argyle Downs Stn, *Perry* 2668, 2.viii.1949 (CANB); Old Lake Argyle Rd, c. 7.9 km SE Kununurra, *Beaulehole* 54331, 6.vi.1976 (MEL); Emerian Pt, Dampierland Peninsula, *Martin* 63, 9.iii.1986 (PERTH); 6 km E Mt Talbot, *Keighery* 10621, 4.iii.1989 (PERTH).

NORTHERN TERRITORY: Mt Bunday, *Dunlop* 4262, 19.v.1976 (AD).

QUEENSLAND: Camooweal, *DeLestang s.n.*, -.xii.1938 (BRI); 30 miles SE Riversleigh Stn, *Perry* 1435, 11.vi.1948 (CANB); Collinsville, *Smith* 4563, 14.ix.1950 (BRI); Riversleigh Holding, *Gillins* 801, -.vi.1963 (BRI); Lawn Hill Hstd, *Webb & Tracey* 10647, -.v.1979 (CANB).

Acknowledgements

I must again express my gratitude to David Symon for allowing me access to his collection of references and photographs of type material, which has enabled this revision to be completed more quickly. During the years of preparation, the work has been supported by grants from the University of Adelaide and the Australian Biological Resource Study. This assistance is gratefully acknowledged.



Map 1. *S. pleurocarpa* var. *pleurocarpa*. Map 2. ● *S. pleurocarpa* var. *angustifolia*; ■ var. *longifolia*. Map 3. *S. notabilis*. Map 4. *S. venusta*. Map 5. ■ *S. magnifolia*; ● *S. alata*. Map 6. *S. timoriensis*.

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A TAXONOMIC REVISION OF THE GENUS *GLOSSOCARYA* WALLICH EX GRIFFITH (VERBENACEAE)¹ IN AUSTRALIA

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Abstract

A taxonomic revision of *Glossocarya* in Australia is presented. The following three species are recognised: *G. calcicola*, *G. coriacea* and *G. hemiderma* with *G. coriacea* described as new.

Affinities and distribution are considered for the genus and each species. A key to the species is provided and a detailed description of each species is supplemented by illustrations.

Taxonomic History of the Genus

The genus *Glossocarya* was proposed by Wallich (1829) with one species *G. mollis*, the type of which came from Burma. Due to lack of generic description it remained an invalid name until Griffith (1843) provided a detailed description. It was then placed in the family Verbenaceae without reference to a particular subfamily or a tribe. This position was maintained by many subsequent botanists. In 1838, however, Endlicher placed the then invalid genus among "Genera Dubia" in the Verbenaceae, and later Walpers (1845) recorded the validated name in the tribe Aegiphileae. Schauer (1847) re-classified the Verbenaceae into three tribes:² Verbenae, Viticeae and Avicennieae. He further subdivided the tribe Viticeae into three subtribes:² Symphoremeae, Caryopterideae and Viticeae, with *Glossocarya* in the subtribe Caryopterideae. The subtribe Caryopterideae was accepted for the genus by Miquel (1858) and Bocquillon (1863). In the same publication, however, Bocquillon (1863) sank *Glossocarya* in the synonymy of genus *Caryopteris* Bunge. Subsequently, Bentham (1876) raised the status of the subtribe Caryopterideae to a tribe. The tribe Caryopterideae was later accepted for *Glossocarya* by C.B. Clarke (1885), Durand (1888), Post and Kuntze (1904), Bailey (1913), Craib (1922), Ridley (1923), Fletcher (1937, 1938), Lemée (1943) and Moldenke (1959, 1971, 1980).

In 1895, Briquet re-classified the Verbenaceae and upgraded the tribe Caryopterideae to a subfamily Caryopteridoideae. This classification was adopted by Dalla Torre & Harms (1904) and Moldenke (1959, 1971, 1980). Post & Kuntze (1904), however, did not accept Briquet's (1895) above classification and reduced the subfamily Caryopteridoideae to tribe Caryopterideae. Junell (1934) appears to have broadly accepted Briquet's classification, but he called Briquet's subfamilies and tribes as tribes and subtribes respectively. In his treatment of the Verbenaceae taxa, Junell (1934) placed the genus *Glossocarya* in the subfamily ("Tribus") Viticoideae, tribe ("Subtribus") Ajugeae. The new tribe and subtribe for the genus seems to have not been adopted by any subsequent botanist. A majority of botanists, however, have retained the genus in the Verbenaceae without reference to any subfamily or a tribe. The present author agrees with Bentham (1876) in retaining this genus in the tribe Caryopterideae as expressed by Fletcher (1937). [See comments under genus].

After the validation of *Glossocarya* by Griffith (1843), it remained a monotypic genus in the publications of Walpers (1845), Schauer (1847), Miquel (1858) and Bocquillon (1863).

¹The present treatment of the genus *Glossocarya* is the eighth in the series of taxonomic revisions in the family Verbenaceae in Australia (See Munir, 1982, 1984a, 1984b, 1985, 1987a, 1987b, 1989).

²For characters on which Schauer (1847) based his tribes and subtribes of the Verbenaceae see DC., *Prod.* 11 (1847) 522-700. Also see Munir (1989) 102-103.

(1863). Subsequently, Bentham (1876), C.B. Clarke (1885), Durand (1888), Briquet (1895), Trimen (1895), Dalla Torre & Harms (1904), Junell (1934) and Dop (1936) credited the genus with 3 species. Post & Kuntze (1904) and Ridley (1923) increased the number to 4, while Angely (1956) and Moldenke (1959) raised the number to 8. More recently, however, Moldenke (1971, 1982) increased the number to 9 species with 3 infraspecific taxa. The present publication has added yet another new species to the above number.

Australian History of the Genus

The first Australian collections of *Glossocarya* were made by Bowman, Dallachy, Daemel and Thozet sometime between 1862 and 1869 in northern Queensland. These collections were identified by F. Mueller (1868) as *Clerodendron linnaei* Thwaites. In view of its marked difference from other *Clerodendrum* species, F. Mueller (1868) created a new section "*Hemiderma*" for this taxon. Regarding it he also remarked that "the abnormal plant belongs for the time being to its own special section, if not genus, distinguished by a sectional name."

In 1870, Bentham recognised the above named taxon as a new *Clerodendrum* species and thus named it after F. Mueller's new section, *Hemiderma*, as *Clerodendrum hemiderma*. This name was accepted by F. Mueller (1875, 1882, 1889) and Bailey (1883, 1890, 1901). Subsequently, however, Bentham (1876) recognised it as a species of *Glossocarya* and mentioned *C. hemiderma* but did not make the new combination, *Glossocarya hemiderma*, which was published by Bailey (1913). This was the first record of *Glossocarya* from Australia. F. Mueller (1889), however, still placed *Glossocarya* in the synonymy of *Clerodendrum*. In 1928, Domin described one of his collection from northern Queensland as *G. calcicola*, thus increasing the number of *Glossocarya* species in Australia to two. Both species were accepted for Australia by Moldenke (1959, 1971, 1980, 1982) Elliot & Jones (1986) and others. At present there are three species of *Glossocarya* known from Australia.

GLOSSOCARYA Wallich ex Griffith

Glossocarya Wallich ex Griffith, Calcutta J. Nat. Hist. 3 (1843) 366;

Walp., Repert. Bot. Syst. 4 (1845) 133; Schauer in A.DC., Prodr. 11 (1847) 625; Miq., Fl. Ind. Bat. 2 (1858) 903; Bocq., Adansonia 3 (1863) 179, 180, 206, as syn. of *Caryopteris* Bunge; R  v. Verbenac. (1863) 110, as syn. of *Caryopteris* Bunge; Pfeiffer, Nom. Bot. 1, part 2 (1874) 1460; Benth. in Benth. & Hook.f., Gen. Pl. 2 (1876) 1136, 1158; Kurz, Forest Fl. Brit. Burma 2 (1877) 257; C.B. Clarke in Hook.f., Fl. Brit. Ind. 4 (1885) 598; Durand, Gen. Phan. (1888) 322; F. Muell., Sec. Syst. Cens. Aust. Pl. 1 (1889) 173, as syn. of *Clerodendrum*; Baillon, Hist. Pl. 11 (1892) 115; Briq. in Engl. & Prantl, Pflanzenfam. IV, 3a (1895) 177, 178; Trimen, Handb. Fl. Ceylon 3 (1895) 361; Dalla Torre & Harms, Gen. Siphon. (1904) 433, no. 7197; T. Post & Kuntze, Lexic. Gen. Phan. (1904) 251, 688; Bailey, Comp. Cat. Qld. Pl. (1913) 386; Craile, Kew Bull. Misc. Inf. (1922) 240; Ridley, Fl. Mal. Penin. 2 (1923) 636; Junell, Symb. Bot. Upsal. 4 (1934) 119; Dop, Fl. G  n. Indochine 4 (1935) 886; Fletcher, Kew Bull. Misc. Inf. (1937) 71, 74; ib. (1938) 37; Lem  e, Dict. Syn. Gen. Pl. Phan. 8b (1943) 657; Mold., R  sum   Verbenac. etc. (1959) 413; N. Burb., Dict. Aust. Pl. Gen. (1963) 135; Mold., Fifth Summary Verbenac. etc. 2 (1971) 523, 763; Cliff. & Lud., Keys Fam. Gen. Qld Fl. Pl. (1972) 124; Airy Shaw, Dict. Fl. Pl. & Ferns 8th edn (1973) 494; Mold., Phytologia 34 (1976) 274; Farr et al., Index Nom. Gen. (1979) 727; Baines, Aust. Pl. Gen. (1981) 166; Mold., Phytologia 47 (1981) 335; Phytologia 48 (1981) 122; Phytologia 50 (1982) 413; Mold. in Dassan. & Fosb., Fl. Ceylon 4 (1983) 480; Elliot & Jones, Encyc. Aust. Pl. 4 (1986) 367; Stanley in Stanley & Ross, Fl. S.E. Qld 2 (1986) 370; Mabb., Pl. Book (1987) 245.

Type species: G. mollis Wallich, Numer. List no. 1741 (1829), nom. nud. ex Griffith, Calcutta J. Nat. Hist. 3 (1843) 366.

Scandent or subscandent shrubs or woody liana. *Stem* and branches almost terete or obscurely tetragonal. *Leaves* simple, decussate-opposite, petiolate, exstipulate, entire, reticulate-veined, unicostate. *Inflorescence* cymose; cymes pedunculate, dichotomous, usually arranged in a dense terminal, corymb-like thyrse. *Flowers* small, numerous, complete, bracteate, pedicellate or subsessile, zygomorphic, bisexual, hypogynous; bracts small or minute, or some of the

lowermost foliaceous. *Calyx* of 5 fused sepals, persistent, tubular or somewhat campanulate, variously 5-toothed or sometimes almost truncate, non-acrescent. *Corolla* of 5 fused petals, deciduous, mostly hypocrateriform or infundibular, tubular below with nearly equally spreading 5 lobes at the top; tube narrow-cylindric, broadened at the apex, straight or curved, longer than calyx; lobes subequal. *Stamens* 4, didynamous, usually much exserted, alternate with the corolla-lobes, epipetalous, inserted in the corolla-throat; filaments filiform; anthers dorsifixed, ovate or ovate-oblong, 2-lobed, lobes parallel or divergent in the free lower half. *Ovary* bicarpellary, syncarpous, 4-locular, with one ovule in each cell, attached to an axile placentation at or above the middle; style terminal, exserted, filiform, glabrous, with 2 short stigmatic lobes. *Fruit* a schizocarp, oblong or ellipsoid-oblong, exserted from the fruiting-calyx, 4-valved, separating into 4 narrow mericarps, substipitate, the valves narrowly obovoid, their margins inflexed or involute from above or from slightly below the middle, placentiferous, each holding one seed by its inflexed margin, dehiscing from the base or from the middle, freeing a persistent, naked, central column ("carpophore"), forming 1-seeded mericarps which are extended basally into a short or linear wing; seeds oblong, erect, narrow, exalbuminous; fruiting calyx enclosing almost lower half of fruit.

Number of species: World: \pm 13 specific and infraspecific taxa; Australia: 3 species.

Derivation of name

The generic name is derived from the Greek, *glossa*, a tongue; *karyon*, a nut; referring to the one-seeded mericarps with its involute tongue-like margin.

Distribution (Map 1)

The genus *Glossocarya* is known from Sri Lanka, Burma, Thailand, Cambodia, Vietnam, Malaya (West Malaysia), Papua New Guinea and Australia. So far, it has not been recorded from India, Philippines and any part of Indonesia.

In Australia, the genus is represented by three species of which two are endemic in eastern Queensland and one is also known from Papua New Guinea.

Comments

Since the inception of the genus *Glossocarya*, various authors have called its fruit a "capsule" and each unit of the fruit a "pyrene" or "nutlet". During the present studies, the fruit has been found to split into 4 parts each with part of the ovary wall. Therefore, it is regarded here as a schizocarp which splits into 4 mericarps.

In a tentative key to the accepted taxa, Moldenke (1982) divided the genus into two categories: The first with seeds basally winged ("alate") and gynophore (i.e. central column) present, and second with seeds not basally winged and no gynophore present. The first category contains only *G. hemiderma* (F. Muell.) Benth. and the second all other species in the genus. In the generic description, however, Moldenke (1982) described the fruit capsular, 4-valvate, "the valves . . . dehiscing from the base or from the middle, freeing a persistent, naked, central column, forming 1-seeded pyrenes which are extended basally into a short or linear wing." This seems to contradict the statement in the "key to the accepted taxa" for segregating *G. hemiderma* from the rest of the taxa in the genus. During present investigation also, all three Australian species were found to have seeds basally winged and a carpophore present. In fact, these two characters are identical in all three Australian species so that they can hardly be used for distinguishing one from the other.

Bentham (1876) described the inflorescence as "flores in cymes sessiles." However, the flowers in two Australian species are found to be shortly pedicellate (up to 3 mm long) and in one almost sessile (up to 1 mm long). [In 1876, the species with up to 3 mm long pedicels was



Map 1. Distribution of the genus *Glossocarya* Wallich ex Griffith in Australia.

the only one known from Australia.]

No cytological investigation of any *Glossocarya* species have been done. There is a need for cytological work on the taxa of this genus.

According to Bhoj Raj (1983), "the pollen grains of *Glossocarya* and some species of *Caryopteris* have a tectate-perforate exine structure with a spinulose or vestigial spinulose sculpture, and are very similar to those of the *Clerodendrum* type."

Briquet (1895) mentions "8 staminodes", but such a character has not been noticed by any other botanist.

Affinities

Glossocarya is closely related to *Caryopteris* Bunge in its inflorescence being cymose, centrifugal, the cymes arranged into corymbose thyrses; calyx more or less cup- or bell-shaped; ovules laterally attached above the base or near the summit of the cells; fruit a schizocarp, 4-valved, the valves separating the mericarps from the placental axis and mericarps winged. Nevertheless, *Glossocarya* can easily be distinguished by its calyx-tube being minutely toothed or almost truncate, corolla not 2-lipped and fruiting calyx not accrescent. In *Caryopteris*, the calyx is deeply 5-fid, corolla 2-lipped with posterior lip usually fimbriate or toothed, stamens greatly exserted and the fruiting calyx accrescent.

According to Fletcher (1937), the fruit characters of the genus *Garrettia* Fletcher "clearly place this genus in the tribe Caryopterideae, which include the genera *Peronema*,

Hymenopyramis, *Glossocarya*, *Caryopteris* and a recently described genus from Annam, *Karomia*, all of which are characterised by having a capsule which dehisces by four valves into four, 1-seeded pyrenes. The imparipinnate leaves and two stamens of *Peronema*, the greatly enlarged calyx surrounding the fruit of *Karomia*, the greatly accrescent 4-winged utricular calyx of *Hymenopyramis*, and the oblong exserted capsule of *Glossocarya*, clearly forbid its inclusion in any of these genera". There are a few characters common between *Glossocarya* and *Petraeovitex* Oliv. Both have non-involucrate cymose inflorescence, 4-valved schizocarpic fruit with valves separating the mericarps from the placental axis. However, *Petraeovitex* may easily be distinguished by its leaves being ternate or biternate; fruiting calyx accrescent, distinctly winged, and greatly changed in form and appearance.

Glossocarya has often been mistaken for *Clerodendrum* L. because of its similar looking leaves, inflorescence type and exserted stamens and style. The latter, however, can easily be distinguished by its drupe and accrescent calyx, while *Glossocarya* has a schizocarp and non-accescent calyx.

Key to the species

- 1a. Leaf-blades glabrous, subcoriaceous or coriaceous, non-glandular; calyx and corolla pubescent but non-glandular outside; ovary and fruit non-glandular and glabrous 1. *G. coriacea*
- b. Leaf-blades pubescent-tomentose or at least puberulous when young, chartaceous; calyx and corolla pubescent and glandular outside; ovary and fruit glandular and tomentose-hirsute 2
- 2a. Leaf-blades glandular-punctate and densely pubescent to tomentose on lower surface; pedicels up to 1 mm long 2. *G. calcicola*
- b. Leaf-blades not glandular-punctate, pubescent when young, later glabrous; pedicels 1-3 mm long 3. *G. hemiderma*

1. *Glossocarya coriacea* Munir, sp. nov.

Clerodendron hemiderma F. Muell. ex Benth., Fl. Aust. 5 (1870) 61, p.p. quoad spec. *Dallachy* s.n. MEL 98208, Rockingham Bay and *Thozet* s.n. K, MEL 98209, MEL 98225 & MEL 98230, Rockhampton.

Frutex scandens vel liana lignosa (1-) 1.5-4 (-6) m longa. Caulis glaber; cortex aspera pallide grisea vel brunnea. *Folia* breviter petiolata; lamina ovata elliptico-ovata vel subcordulata integra obtusa vel breviter acuminata (20-) 35-80 (-110) mm longa (15-) 20-60 (-75) mm lata coriacea vel subcoriacea superne aliquam nitida et viridis inferne obscura et pallide viridis glabra; petiolus gracilis puberulus (2-) 4-8 (-10) mm longus. *Inflorescentia* thyrsus corymboides terminalis et in axillis foliorum supremorum (30-) 40-80 (-110) mm longus (40-) 50-100 (-120) mm latus; cymae congestae trichotomae pubescentes; pedunculi laterales primarii graciles pubescentes (10-) 15-40 (-50) mm longi. *Flores* suaveolentes pedicellati bracteati congesti; pedicelli incano-pubescentes non glandulosi 1-3 mm longi; bractae sessiles oblongo-lanceolatae incano-pubescentes \pm 1 mm longae. *Calyx* campanulatus vadoso 5-dentatus raro 6-dentatus interdum fere truncatus non glandulosus extra incano-pubescent intra glaber 3-4.5 mm longus apice 2-3 mm diametro; dentes breves rotundati vel breviter apiculati 0.5-1 mm longi basaliter \pm 1 mm lati. *Corolla* alba infundibuliformis 5-lobata non glandulosa extra sericeo-pubescent fauce villosa; tubus infra cylindricus superne dilatatus 5-7 mm longus superne 1.5-3 mm diametro; lobi elliptici vel elliptico-oblongi obtusi 2-3.5 mm longi 1.5-2.5 mm lati. *Stamina* 4 didynama exserta; filamenta alba fauce corollae inserta filiformia supra glabra prope basem villosa 6-9 mm longa; antherae oblong-ellipticae 0.5-1 mm longae. *Ovarium* ellipsoideo-obovoideum non glandulosum glabrum interdum apice pilis paucis sparsis vadoso 4-lobatum 1-1.5 mm longum \pm 1 mm diametro; stylus albus filiformis glaber 9-12 mm longus; stigma bifida. *Fructus* oblongus vel ellipsoideo-oblongus apice rotundatus super calycem fructificantem multum exsertus ubi vivus viridis ubi maturus siccusque cinereo-brunneus 4-8 (-10) mm longus 2-3.5 mm diametro generatim glaber interdum initio apice sparsim hirsutus postea glabrescens dehiscens in nucas 4 angustas findens in nuxe quoque pars inferior sine semine alata; calyx fructificans chartaceus 3-5 mm diametro non lateraliter expansus dimidium infernum fructus includens.

Type: C.T. White 12490, Port Curtis district, Queensland, Australia, 26.xi.1943 (BRI, holotype; GH, K, MO, UC — isotypes).

Description (Fig. 1)

A scandent shrub or a woody liana, (1-) 1.5-4 (-6) m long. *Stem* glabrous; bark rough, light grey or brown. *Leaves* shortly petiolate; lamina ovate, elliptic-ovate or somewhat cordulate,

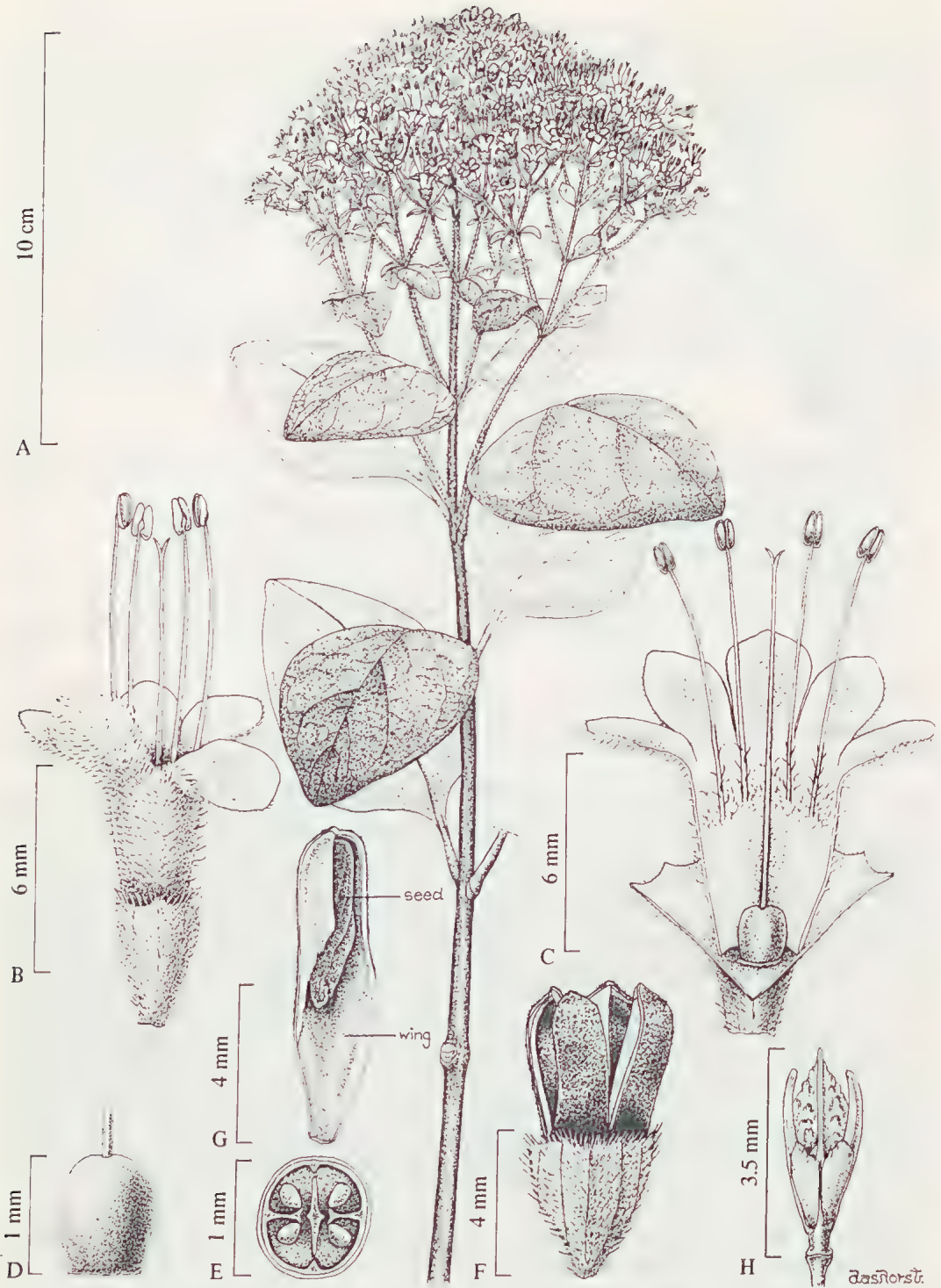


Fig. 1. *Glossocarya coriacea* Munir, sp. nov. (A-E, N. Gibson 1072: BRI; F-H, P. O'Shanesky 36: MEL 98236). A, flowering branch; B, flower; C, flower with calyx and corolla vertically cut open showing androecium, glabrous gynoeceum and hairy corolla-throat; D, ovary; E, transverse section of ovary; F, dehiscent fruit with glabrous mericarps; G, mericarp showing seed and wing; H, carpophore without mericarps and fruiting calyx.

entire, obtuse or shortly acuminate, (20-) 35-80 (-110) mm long, (15-) 20-60 (-75) mm wide, coriaceous or subcoriaceous, semiglossy green above, dull pale green below, glabrous; petiole slender, puberulous, (2-) 4-8 (-10) mm long. *Inflorescence* corymboid thyrse, terminal and in the axil of top-most leaves, (30-) 40-80 (-110) mm long, (40-) 50-100 (-120) mm wide; cymes congested, trichotomous, pubescent; lateral primary peduncles slender, pubescent, (10-) 15-40 (-50) mm long. *Flowers* "sweetly scented", pedicellate, bracteate, congested; pedicels hoary-pubescent, non-glandular, 1-3 mm long; bracts sessile, oblong-lanceolate, hoary-pubescent \pm 1 mm long. *Calyx* campanulate, shallowly 5-toothed, rarely 6-toothed, sometimes almost truncate, non-glandular, hoary-pubescent outside, glabrous inside, 3-4.5 mm long, 2-3 mm diam. at top; teeth short, rounded or shortly apiculate, 0.5-1 mm long, \pm 1 mm wide at base. *Corolla* "white", infundibuliform, 5-lobed, rarely 6-lobed, non-glandular, silky-pubescent outside, villous in throat; tube cylindrical below, enlarged at top, 5-7 mm long, 1.5-3 mm diam. at top; lobes elliptic or elliptic-oblong, obtuse, 2-3.5 mm long, 1.5-2.5 mm wide. *Stamens* exserted; filaments "white", filiform, glabrous above, villous near base, 6-9 mm long; anthers oblong-elliptic, 0.5-1 mm long. *Ovary* ellipsoid-obovoid, non-glandular, glabrous, sometimes with a few sparse hairs on top, shallowly 4-lobed, 1-1.5 mm long, \pm 1 mm diam.; style "white", filiform, glabrous, 9-12 mm long, stigma bifid. *Fruit* oblong to ellipsoid-oblong, rounded at top, much exserted above fruiting calyx, green when fresh, greyish-brown when mature and dry, 4-8 (-10) mm long, 2-3.5 mm diam., generally glabrous, sometimes initially sparsely hairy on top, later turning glabrescent, dehiscent, splitting into 4 narrow mericarps, the lower seedless portion winged on each nut; fruiting calyx chartaceous, 3-4 mm diam.

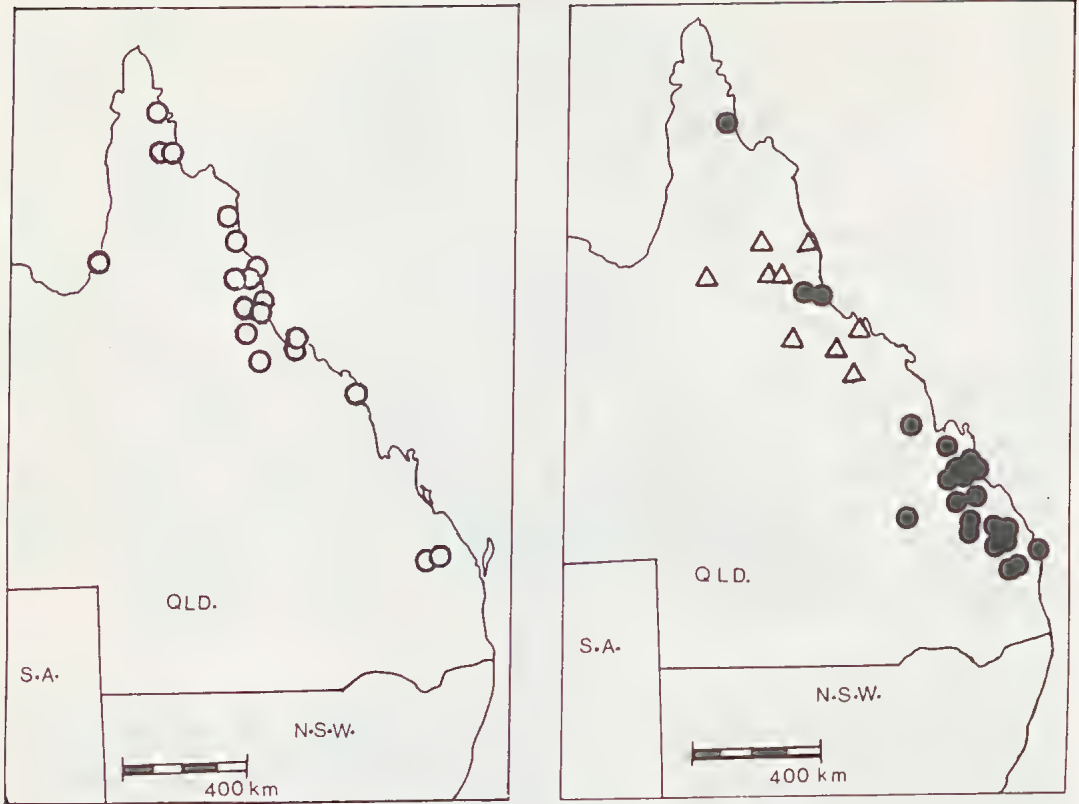
Representative specimens (Collections seen: Australian 50)

AUSTRALIA: QUEENSLAND: *Anderson 3975*, Along Moore Creek, c. 2 km N Rockhampton, 14.iv.1985 (BRI); *Bancroft s.n.*, Eidsvold, -iv.1923 (A, BRI, GH, NSW); *Batianoff & McDonald 682*, Double Head, Rosslyn Harbour, 7 km SE Yeppoon, 9.ix.1977 (BRI); *Bidwill 18*, Wide Bay, undated (K); *Blake 12755*, Marmor, between Rockhampton and Gladstone, 8.iii.1937 (BRI); *Bowman s.n.*, Herbert Creek, 1870 (MEL 98427); *Bowman s.n.*, Crocodile Creek, undated (MEL 98235); *Dallachy s.n.*, Herbert River, 5.xi.1868 (MEL 98222, syntype of *Clerodendron hemiderma* F. Muell. ex Benth.); *Dallachy s.n.*, Rockingham Bay, undated (C, MEL 98208, syntype of *Clerodendron hemiderma* F. Muell. ex Benth.); *Dallachy s.n.*, Mt Archer, 3.i.1863 (MEL 98233); *Dietrich 902*, Rockhampton, 1864-66 (CANB, G, HBG, L, MEL, NY, PR); *Dietrich 1331*, loc. cit., 1864 (AD, FI, HBG, MEL, PR); *Forster 2772*, Mt Perry, 7.xii.1986 (BRI, NSW); *Forster 3289*, 1 km SW Booyal, 27.xi.1987 (BRI); *Fryar s.n.*, Glastonbury, 27.xi.1980 (BRI); *Gibson 460*, Callide, Biloela area, 1.i.1983 (BRI); *Gibson 997*, State Forest 53, Dan Dan scrub, 5.xii.1987 (BRI); *Gibson 1072*, State Forest 60, Rundle Range, 23.xii.1987 (BRI); *Hyland 6824*, T.R.14, Rocky River Catchment, 7.ix.1973 (L, QRS); *O'Shanesy 10*, Rockhampton, 7.i.1867 (MEL 98237); *Rodd & Hardie 4387*, Burnett Highway, 22 km S Mt Morgan, 14.iv.1983 (BRI, NSW); *Sharpe & Hockings 679*, Isla Gorge, c. 28 km SW Theodore, 27.viii.1973 (BRI); *Sharpe & Forster 4621*, Mt Glastonbury, c. 20 km W Gympie, 11.i.1987 (BRI, MEL); *Smith 651*, Dallarnil, Burnett district, 28.xii.1939 (BRI); *Smith 3577*, Mt Scoria, c. 6.5 km SSE Thangool, 27.x.1947 (BISH, BRI, GH, L); *Smith 9807*, Goodnight Scrub, c. 65 km SW Bundaberg, 11.vi.1957 (BRI, GH, L); *Telford 964*, Coalstaun Lakes, c. 40.23 km E Gayndah, 27.v.1969 (CBG 2 spec.); *Thozet s.n.*, Rockhampton, 1869 (K, MEL 98225, MEL 98209, MEL 98230 — syntypes of *Clerodendron hemiderma* F. Muell. ex Benth.); *Thozet 555*, Mt Archer, undated (MEL 98243); *Webb 2208*, Bajool, 5.ix.1950 (CANB); *Webb & Tracey 10727*, Mt Etna via Rockhampton, 13.v.1971 (BRI, CANB); *White 12490*, Marmor S of Rockhampton, Port Curtis District, 26.xi.1943 (BRI, holotype; GH, K, MO, UC — isotypes); *Williams 80001*, 30 km S of Lotus Creek, Bruce Hwy, 5.iv.1980 (BRI); *Wilson 709*, Goodnight Scrub, 64.37 km SW Bundaberg, 11.vi.1957 (BRI).

Distribution and ecology (Map 2)

G. coriacea seems to be endemic to the coastal regions of Queensland in Australia. It has been most commonly collected from pastoral districts "Leichhardt", "Port Curtis" and "Wide Bay". A few collections are known from around Rockingham Bay in the "North Kennedy" district. The northernmost known locality is on Cape York Peninsula where it has been recorded from Rocky River Catchment area near McIlwraith Range. This taxon has not been reported from any off-shore island nor from the coastal areas along the Gulf of Carpentaria. The overall known distribution is between 22° and 27°S and 149° and 153°E.

Growing in semi-evergreen vineforest on limestone outcrops. Also found in monsoon



Map 2. Distribution of *G. hemiderma* ○, *G. calcicola* △, *G. coriacea* ●.

rainforest on steep rocky hillside and on dissected sandstone plateau. Often climbing on shrubs and tree-tops in river-catchment areas.

Comments

The material of this species has been misidentified and distributed in some herbaria as *Clerodendron hemiderma*, *Glossocarya hemiderma* and *G. calcicola*. The chief distinguishing character of this species is its glabrous ovary and almost coriaceous glabrous leaves, but these characters were apparently overlooked by other botanists. No one has recorded glabrous ovary in the genus *Glossocarya* in Australia.

As mentioned above, the ovary is generally completely glabrous, but in a few collections (e.g. *Bancroft s.n.* and *Sharpe & Forster 4621*) a few sparse hairs have been noticed on top of ovary. Sometimes, the number of calyx-teeth and corolla-lobes each range from 4 to 6 in flowers of the same inflorescence. The juvenile leaves are puberulous and sometimes crenate or dentate, but mature leaves are always glabrous and entire.

Affinities

G. coriacea seems to be nearest to *G. hemiderma*. In view of their close resemblance, *G. coriacea* has previously been misidentified as *G. hemiderma*. The former, however, may readily be identified by its coriaceous glabrous leaves, pubescent but non-glandular calyx and corolla, and absence of glands and hairs on ovary and capsule.

2. *Glossocarya calcicola* Domin, Biblioth. Bot. 89, VI (1928) 558, fig. 180; Wangerin, Just's Bot. Jahresber. 56(1) (1936) 668; Fedde & Schuster, Just's Bot. Jahresber. 56(2) (1937) 285; Mold., Known Geogr. Distrib. Verbenac. edn 1 (1942) 69; ibd. edn 2 (1949) 153; Mold., Résumé Verbenac. etc. (1959) 209; Fifth Summary Verbenac. etc. 1 (1971) 346; Sixth Summary Verbenac. etc. (1980) 336; Phytologia 50 (1982) 418; Elliot & Jones, Encyc. Aust. Pl. 4 (1986) 368 & fig.

Holotype: Domin 8156, Chillagoe in collibus calcareis carsticisque frequens, 9.ii.1910 (PR); Domin 8157, loc. cit. 9.ii.1910 (PR, possible isotype).

G. hemiderma F. Muell. ex Benth., Fl. Aust. 5 (1870) 61, p.p. quoad spec. Bowman 77, Sellheim River, Qld undated (MEL 98221).

Typification

While dealing with Domin's Australian collections of the family Verbenaceae it seems that on several occasions he gave a new collecting number to duplicates of his collection. This had been noticed in his collections of the genera *Callicarpa* L., *Clerodendrum* L., *Premna* L. and *Vitex* L. During present investigation it was found that Domin seems to have continued with this practice in a collection of *G. calcicola*. The label information and collecting dates with his collection nos *Domin 8156* and *Domin 8157* are exactly the same. Both numbers (i.e. specimens) belong to the type collection and appear to have been collected simultaneously from the same plant. According to the protologue of *G. calcicola*, *Domin 8156* is found to be the holotype of this species, and *Domin 8157* is, therefore, regarded here as a possible isotype. Both type specimens are preserved in Herb. PR.

Description (Fig. 2)

A large scandent shrub or liana 2-5 m long. *Stem* pubescent, becoming glabrescent when old; branchlets canescent-tomentose. *Leaves* shortly petiolate; lamina cordate-orbicular or broadly cordate-ovate, entire, obtuse or shortly acuminate, (20-) 30-55 (-65) mm long, (20-) 35-50 (-55) mm wide, chartaceous to coriaceous, green shiny but shortly and softly puberulent-pubescent above, glandular-punctate and densely pubescent-tomentose on lower surface; petiole densely pubescent-tomentose, 3-8 (-10) mm long. *Inflorescence* terminal, dense corymboid thyse, 30-60 (-90) mm long, 40-100 (-140) mm wide; cymes compact, many-flowered, pubescent-tomentose; lateral primary peduncles pubescent-tomentose, (10-) 20-30 (-40) mm long. *Flowers* subsessile or with a short pubescent pedicel up to 1 mm long; bracts minute, sessile, oblong or linear-lanceolate, \pm 1 mm long. *Calyx* narrowly campanulate or obovoid, shallowly 5-toothed, sometimes almost truncate, glandular and hoary-pubescent outside, glabrous inside, 2.5-3.5 mm long, 1.5-2 mm diam. at top; teeth short, acute, \pm 0.5 mm long, about 1 mm wide at base. *Corolla* "white", infundibuliform, 5-lobed, glandular and pubescent outside, sparsely villous in throat; tube slender, cylindrical, broadened at top, almost twice as long as the calyx, (4-) 5-7 mm long, 1-2 mm diam. at top; lobes elliptic-oblong, obtuse 2-3 mm long, 1-2 mm wide. *Stamens* much exserted; filaments "white", filiform, glabrous above, villous towards base, (4-) 6-9.5 mm long; anthers oblong-elliptic, 0.5-1 mm long, \pm 0.5 mm wide. *Ovary* ellipsoid-obovoid, glandular and densely tomentose-hirsute on upper half, faintly 4-lobed on top, 0.5-1 mm long, \pm 0.5 mm diam.; style exserted, filiform, glabrous, 8-12 mm long. *Fruit* oblong to ellipsoid-oblong, rounded at top, almost twice as long as the fruiting calyx, green, turning greyish-brown when mature and dry, 5-8 mm long, 2-3 mm diam., glandular, tomentose to hirsute on the upper half; fruiting calyx chartaceous, 3-5 mm long, not expanding outwards.

Specimens examined

AUSTRALIA: QUEENSLAND: Bowman 77, Sellheim River, 1869 (MEL 98221, syntype of *Clerodendron hemiderma* F. Muell. ex Benth.); Clarkson 6846 & McDonald, Royal Arch Tower, c. 5 km SW Chillagoe, 10.iii.1987

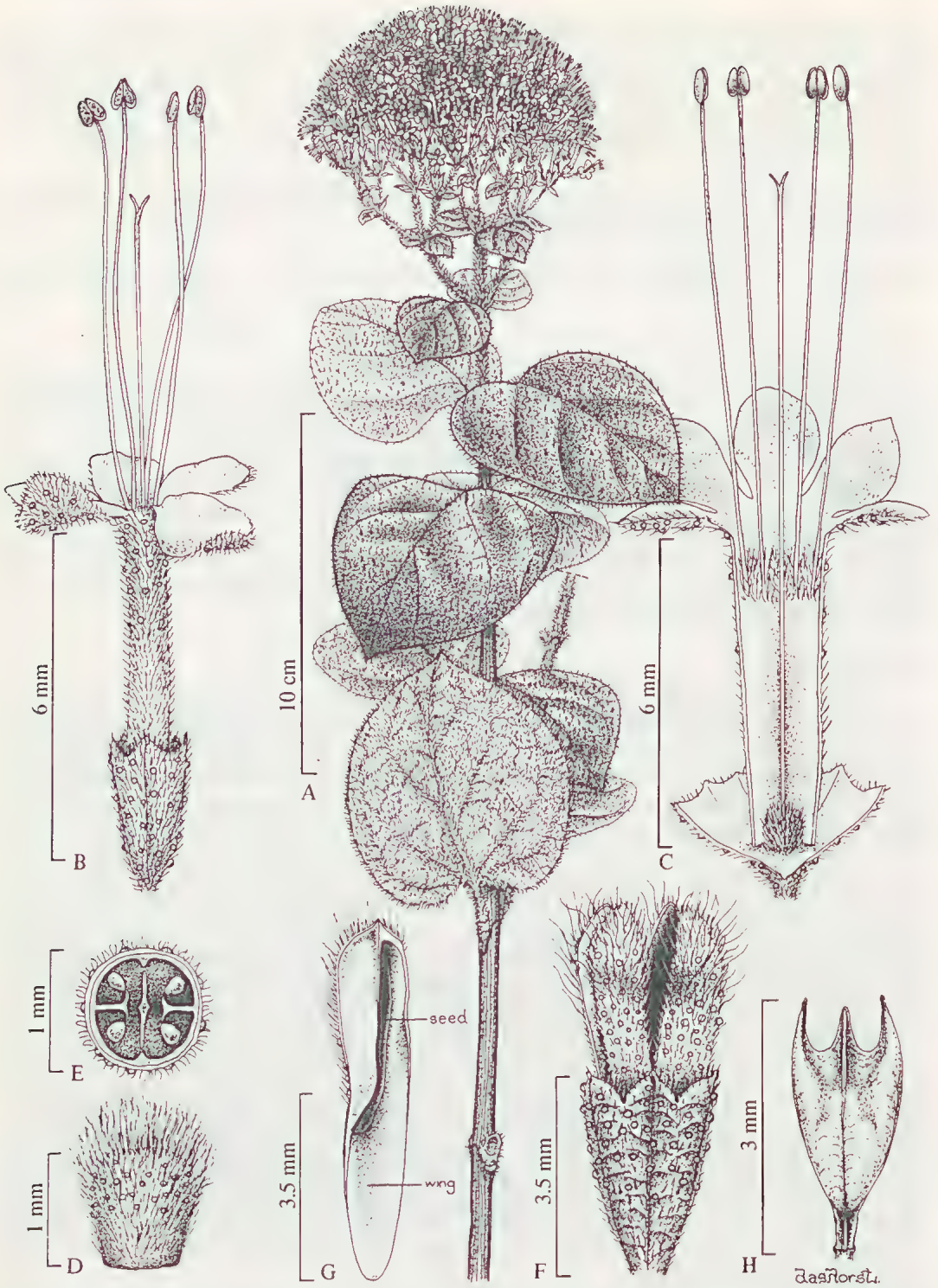


Fig. 2. *Glossocarya calcicola* Domin (A-H, K. Domin 8156, holotype). A, habit sketch of a flowering branch; B, flower; C, flower with calyx and corolla longitudinally cut open showing androecium and gynoecium; D, ovary; E, transverse section of ovary; F, dehiscent fruit with tomentose mericarps; G, mericarp showing seed and wing; H, carpophore without mericarps and fruiting calyx.

(AD, BRI); *Clarkson 6887 & McDonald*, Forty Mile Scrub National Park, 1.6 km N of the Mount Surprise road junction on Kennedy Highway, 11.iii.1987 (AD, BRI, DNA, MBA, PERTH, QRS); *Conn & Campo 1317*, Griffith Siding, c. 4 km E Mungana, 10 km W Chillagoe, 2.vi.1983 (BRI, CANB, DNA, MAREEBA, MEL); *Daintree s.n.*, Gilbert River, undated (MEL 98242); *Domin 8155*, apud rivulum Harveys Creek, -.xii.1909 (PR); *Domin 8156*, Chillagoe in collibus calcareis carsticisque frequens, 2.ii.1910 (PR, holotype); *Domin 8157*, loc. cit., 2.ii.1910 (PR, possibly an isotype); *Flecker 7169*, Chillagoe, 4.i.1941 (BRI); *Hubbard & Winders 6767*, Chillagoe, 22.i.1931 (BRI, K); *Hyland 5832*, between Chillagoe and Mungana, 26.i.1972 (BRI, QRS); *Hyland 6052*, Barrabas Scrub, 16.v.1972 (BRI, QRS); *Kahn s.n.*, Toomba NW Charters Towers, 23.iv.1978 (JCT/S-7851); *Michael 283*, Chillagoe, undated (E, GH); *F. Mueller s.n.*, Burdekin River, undated (K); *Webb & Tracey 10178*, 6.4 km N Mungana, 31.v.1970 (BRI, CANB); *Williams 80010*, Reedy Brook Station, between Reedy Brook and Valley of Lagoons, 9.iv.1980 (BRI); *Wyatt 8*, Mt Inkerman S of Home Hill, -.i.1968 (BRI); *Collector unknown*, Chillagoe, 23.viii.1967 (BRI).

Distribution and ecology (Map 2)

G. calcicola is endemic to Queensland where it is known to occur chiefly in the west-south-west of Cairns and south-south-west of Townsville. Almost all known localities are restricted to the pastoral districts "Cook" and "North Kennedy" where this species has been frequently collected from around Chillagoe, Mungana and along Burdekin River. The overall distribution is in the coastal areas between 17° and 21°S and 142° and 148°E.

It is known to grow "amongst limestone boulders on outcrops" and in "deciduous vine thicket on basalt". Also recorded from "limestone karst outcrops, dominated by *Brachychiton*, *Eucalyptus dichromophloia* and *Terminalia platyphylla*".

Comments

A collection of this species by *B.J. Conn & J. De Campe 1317*, from west of Chillagoe in Queensland, is reported to have come from "limestone karst outcrops, dominated by *Brachychiton*, *Eucalyptus dichromophloia* and *Terminalia platyphylla*". The above named *Eucalyptus* species, however, is according to G.M. Chippendale (1988), only known from "central-northern Northern Territory".

Foliage of juvenile shoots is markedly different from that on mature stems. Often the foliage on juvenile shoots is smaller and with dentate or lobed margins, but the laminae of mature leaves are always entire.

The corolla-tube was described by Moldenke (1982) as "internally glabrous", but during the present study a villous tomentum has been observed inside the corolla-throat.

According to field notes by *Clarkson 6887 & McDonald s.n.*, the flowers of this species are "green", but *Hyland 5832* recorded flowers with "white petals".

Affinities

Amongst Australian *Glossocarya* species, *G. calcicola* seems nearest to *G. hemiderma*. In both species, leaf-blades are hairy at least at young stage, calyx and corolla pubescent and glandular outside, and ovary and capsule glandular and tomentose-hirsute. For distinguishing characters see 'Key to the species'. According to Domin (1928), *G. calcicola* is closely related to "eastern Indian" species *G. mollis* Wall. In both taxa, the leaf-blades are tomentose to subvelutinous beneath, and ovary and capsule tomentose-hirsute. However, *G. mollis* can easily be distinguished by the larger size of its leaf-blades (6-10 cm long) and rather ample inflorescence (up to 30 cm long and 15 cm wide). Besides, the leaf-blades in *G. mollis* are apically usually acute or acuminate to mucronate, obsoletely pubescent above, and corolla-lobes 4 mm long. In *G. calcicola*, the leaf-blades are 2-6.5 cm long and 2-5.5 cm wide, apically obtuse or shortly acuminate, softly pubescent above; inflorescence 3-9 cm long and 4-14 cm wide; corolla-lobes 2-3 mm long. Moreover, *G. mollis* occurs in Burma and Malaya (now West Malaysia) while *G. calcicola* is endemic to north-eastern Queensland in Australia.

3. *Glossocarya hemiderma* (F. Muell. ex Benth.) Bailey, Compr. Cat. Qld Pl. (1913) 386, fig. 365, p.p.; Domin, Biblioth. Bot. 89, VI (1928) 558, p.p.; Junell, Symb. Bot. Upsal. 4 (1934) 119, 120 & fig. 184, p.p.; Beer & H.J. Lam, Blumea 2 (1936) 221, 226, p.p.; Mold., Résumé Verbenac. etc. (1959) 201, 209, 211, 264, 266, 296, p.p.; Willaman & Schubert, Techn. Bull. U.S.D.A. 1234 (1961) 237, p.p.; Mold., Fifth Summary Verbenac. etc. 1 & 2 (1971) 336, 346, 349, 446, 449, 523, p.p.; Mold., Phytologia 28 (1974) 448, p.p.; Phytologia Mém. 2 Sixth Summary Verbenac. etc. (1980) 327, 336, 340, p.p.; Baines, Aust. Pl. Gen. (1981) 166, p.p.; Phytologia 50 (1982) 419, p.p. excl. C.T. White 12490; Stanley in Stanley & Ross, Fl. S.E. Qld 2 (1986) 370, p.p.; Elliot & Jones, Encyc. Aust. Pl. 4 (1986) 368, p.p.; Williams, Native Pl. Qld 3 (1987) 142, p.p., 143 fig.

Lectotype: *J. Dallachy s.n.*, Rockingham Bay, Queensland, undated (MEL 98216, lectotype designated here; MEL98203 – MEL98207, MEL98210 – 98214, MEL98227 – MEL98229, MEL un-numbered spec. — isolectotypes!) excl. syntypes *Bowman 77*, Sellheim River; *Thozet s.n.*, Rockhampton.

Clerodendron hemiderma F. Muell. ex Benth., Fl. Aust. 5 (1870) 61, p.p. excl. syntypes *Bowman 77*, Sellheim River, *Dallachy s.n.*, MEL98208, Rockingham Bay & *Thozet s.n.*, Rockhampton; F. Muell., Fragm. 9 (1875) 5; Syst. Cens. Aust. Pl. 1 (1882) 103; Bailey, Synop. Qld Fl. (1883) 380; F. Muell., Sec. Syst. Cens. Aust. Pl. 1 (1889) 173; Bailey, Cat. Pl. Qld (1890) 36; Qld Fl. 4 (1901) 1182, p.p.; Elliot & Jones, Encyc. Aust. Pl. 3 (1984) 49, p.p., "*Clerodendrum*".

Type: As for *G. hemiderma* (F. Muell. ex Benth.) Bailey.

C. linnaei auct. non. Thwaites: F. Muell., Fragm. 6 (1868) 151.

Typification

G. hemiderma is based on four different collections from Queensland. These were gathered by *Daemel s.n.* from Cape York Peninsula, *Dallachy s.n.* from Rockingham Bay, *Bowman 77* from Sellheim River and *Thozet s.n.* from Rockhampton. As no holotype was designated by the author a lectotype is selected here. Of these syntypes, Bowman's collection from Sellheim River was found to belong to *G. calcicola* Domin and Thozet's one from Rockhampton to a newly described species, *G. coriacea* Munir. Thus these two collections are excluded from *G. hemiderma*. In the remaining two (syntype) collections, Daemel's collection comprises five specimens and Dallachy's at least two dozen. All Dallachy's syntypes came from around Rockingham Bay, but at least seven of them were collected on different dates and some from different localities. Of all these syntypes, one of Dallachy's specimen, numbered MEL 98216, is particularly complete, and well preserved, so that it is selected here as the lectotype of this species.

Description (Fig. 3)

A straggling or scandent liana or large woody shrub, 2-3 (-6) m tall. *Stem* glabrescent when full-grown; branches and branchlets hoary-pubescent with appressed hairs. *Leaves* shortly petiolate; lamina ovate or cordate-ovate, entire, obtuse or shortly acuminate, (25-) 40-80 (-110) mm long, (15-) 20-60 (-80) mm wide, chartaceous, dull green above, light green beneath, puberulous when young, later glabrous; petiole slender, puberulous, (3-) 5-8 (-10) mm long. *Inflorescence* terminal and in the axil of top-most leaves, corymboid thyse, (30-) 40-80 (-110) mm long, (40-) 60-100 (-150) mm wide; cymes rather compact, trichotomous, pubescent; lateral primary peduncles slender, divergent, hoary-pubescent, (10-) 20-40 (-50) mm long. *Flowers* pedicellate, bracteate, small, numerous; pedicels hoary-pubescent, glandular, 1-3 mm long; bracts sessile, oblong-lanceolate, hoary-pubescent, \pm 1 mm long. *Calyx* non-acrescent, campanulate or obovoid, shallowly 5-toothed, sometimes almost truncate, hoary-pubescent and glandular outside, glabrous inside, 3-4.5 mm long, 2-3 mm diam. at top; teeth rounded or blunt, shortly apiculate, \pm 0.5 mm long, 1 mm wide at base. *Corolla* cream-white, infundibuliform, 5-lobed at top, glandular and hoary-puberulous outside,

villous in throat; tube slender, cylindrical below, enlarged at top, 5-7 mm long, 1.5-3 mm diam. at top; lobes elliptic-oblong, obtuse, (1.5-) 2-3 (-3.5) mm long, 1.5-2.5 mm wide. *Stamens* 4 (or rarely 5), didynamous, exserted; filaments white, inserted above middle of corolla-tube, filiform, glabrous above, villous near base, 6-9 mm long; anthers oblong-elliptic, 0.5-1 mm long. *Ovary* ellipsoid-obovoid, glandular and tomentose-hirsute on upper half, somewhat 4-lobed, \pm 1 mm long, 0.5-1 mm diam.; style exserted, filiform, glabrous, 9-13 mm long; stigma bifid. *Fruit* oblong to ellipsoid-oblong, rounded at top, much exserted above fruiting calyx, green when fresh, greyish brown when mature and dry, 6-10 mm long, 3-3.5 mm diam., the exserted portion glandular and tomentose-hirsute, 4-locular in upper part where the endocarp closes round the seeds and separates into 4 narrow mericarps, the lower seedless portion resembling a wing on each mericarp, the lower portion of the dissepiment remaining attached to the receptacle (after the mericarps have fallen) as a cuneate-oblong carpophore which is 3-toothed at top and nearly as long as the calyx; fruiting calyx thinly chartaceous, 3-5 mm long, not expanding outwards.

Specimens examined

AUSTRALIA: QUEENSLAND: *Bationoff* 3134 & *Dalliston*, Shaw Island, 4.xi.1985 (BRI); *Boyland & Gillieatt* 628, c. 8 km E Euramo, 29.xi.1969 (BRI, GH, K, L, MEL); *Cunningham s.n.*, Cleveland Bay, 1819 (BM); *Daemel s.n.*, Cape York, loc. incert, undated (BM, K 2 spec., MEL 98217, MEL 98220 — syntypes); *Dallachy s.n.*, Rockingham Bay, undated (MEL 98216, lectotype; MEL 98203 - MEL 98207, MEL 98210 - MEL 98214, MEL 98227 - MEL 98229 & MEL unnumbered spec. — isoelectotypes); *Dallachy s.n.*, Herbert River, Rockingham Bay, 17.xi.1863 (C, MEL 98223, syntypes); *Dallachy s.n.*, Rockingham Bay, 26.iii.1865 (C, MEL 98218, syntypes); *Dallachy s.n.*, Four Mile Creek, Rockingham Bay, 28.vii.1865 (MEL 98226, MEL 98202); *Dallachy s.n.*, Rockingham Bay, 14.xii.1865 (MEL 98219, syntype); *Dallachy s.n.*, Dalrymple Gap, 10.xii.1867 (MEL 98215, syntype); *Dansie* 3457, Forest Reserve 185, Danbullia, c. 25 km SW Cairns, -.xi.1964 (BRI 2 spec., L); *Dansie s.n.*, Caravan Creek area, Mulgrave River, 3.vi.1965 (BRI 061235, BRI 061236); *Dockrill* 899, Forest & Timber Bureau Qld Research Station, Atherton, 25.xi.1974 (BRI, L, QRS); *Flecker* 7838, Murray River near Rockingham Bay, 25.xii.1941 (AD); *Forster* 3619 & *Bolton s.n.*, 2 km SW Mt Keelbottom, Fletcher Creek, Dotswood, 12.iii.1988 (BRI); *Hamilton s.n.*, Foot of Bellenden Ker, -.ii.1912 (BRI 268206); *Hyland* 5730, State Forest Reserve 310 Dreghorn L.A., 23.xii.1971 (BISH, BRI, CANB, GH, K, L); *Hyland* 6824, T.R. 14 Rocky River Catchment, 7.ix.1973 (BRI); *Ising* 836, Murray River, 25.xii.1941 (AD); *Irvine* 729, Forest & Timber Bureau Arboretum Atherton, 18.i.1974 (BRI, L, QRS); *Jessup* 328 & 329, Beauty Spot, Good Night, S.F.W. Booyal, 21.v.1981 (BRI); *Kanny s.n.*, Bellenden Ker, -.ii.1912 (BRI 268207); *Keys* 76, Mount Perry, undated (BRI 268204); *MacGillivray* 82, Sandy Cape, Port Bowen, 1842 (BM); *F. Mueller s.n.*, Gilbert River, undated (P); *F. Mueller s.n.*, Rockingham Bay, undated (GH partly, the other part *G. coriacea*, K, L 908266-897, L 908266909); *Nugent* 35, Cairns, undated (BRI); *Rodd & Hardie* 4450, Clevedon, 25 km SE Townsville, 18.iv.1985 (BRI); *Sandercoe* 859, Magnetic Island, 10.viii.1982 (BRI); *Smith* 10590, Mt Cook trip, 27.viii.1959 (BRI); *Webb & Tracey* 8123, McIlwraith Range, NE Coen, -.viii.1962 (BRI); *Webb & Tracey* 8124, Bailey Creek, -.viii.1962 (BRI); *Webb & Tracey* 8556, Claudie River between Portland Roads and Iron Range, 21.x.1968 (BRI).

PAPUA NEW GUINEA: *Brass* 5674, Kubuna, Central Division, Papua, -.xi.1933 (L, NY); *Brass* 8243, Lower Fly River, east bank opposite Sturt Island, Papua, -.x.1936 (GH, L); *Brass* 21984, Banapa, Cape Vogel Peninsula, Milne Bay District, 20.iv.1953 (CANB, GH, L). *Carr* 11471, Kanosia, 22.ii.1935 (L).

Distribution and ecology (Map 2)

G. hemiderma is known to occur in tropical Queensland. Almost all known localities are in the east coastal areas and on nearby off-shore islands, with the exception of one collection from Gilbert River along the Gulf of Carpentaria. It has been most commonly recorded from Atherton Tableland and the area along Rockingham Bay. The northern-most locality is near Claudie River on Cape York Peninsula and the southern-most near Bundaberg. Moldenke (1959, 1971, 1980, 1982), however, has reported this species from Thursday Island in the Torres Strait.

Collections from Papua New Guinea are the only ones examined from outside Australia.

Growing in mixed mesophyll vineforest as well as notophyll vineforest on soil derived from granitic material. Sometimes scrambling among grasses on banks of creeks on sandy-clay loam. According to Moldenke (1982), "collectors have found this plant "common" or "very common" in mixed softwood forests, in rainforests on limestone, and along roadsides, flowering

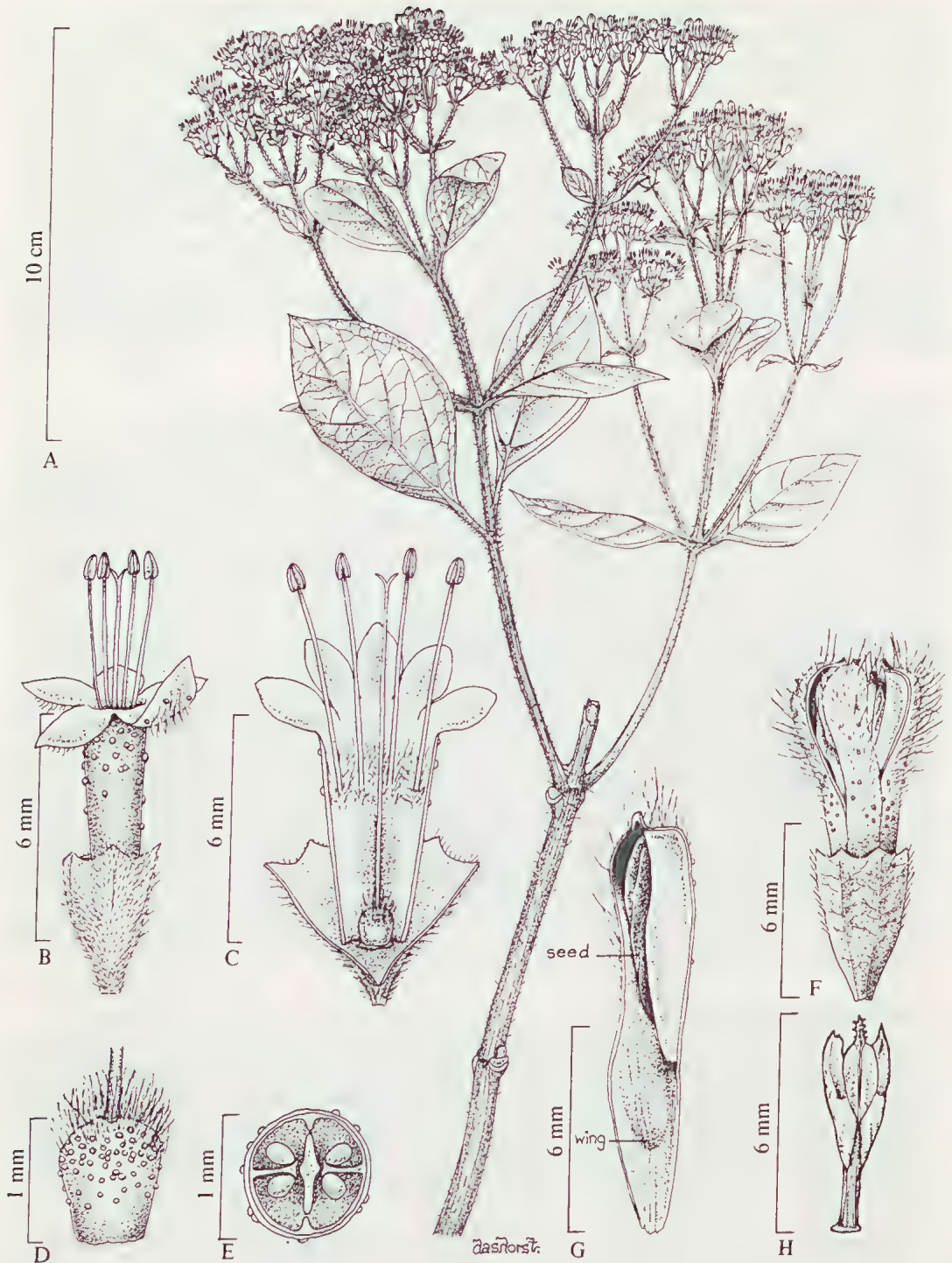


Fig. 3. *Glossocarya hemiderma* (F. Muell.) Bailey. (A-H, *J. Dallachy* s.n.: MEL 98216, lectotype). A, habit sketch of a flowering branch; B, flower; C, flower with calyx and corolla longitudinally cut open showing androecium and gynoecium; D, ovary; E, transverse section of ovary; F, dehiscent fruit with tomentose mericarps; G, mericarp showing seed and wing; H, carpophore without mericarps and fruiting calyx.

in May, June, October and November, in fruit in April. The corollas are said to have been "white" on all collections where the colour was noted".

Williams (1987) made the following ecological observations on *G. hemiderma*: "The plants are well branched. Soils are brown, cracking clay loams, often containing a good deal of loose stone and giving the impression they may become rather cloggy during periods of wet weather. The plants were also found in a small patch of depauperate vine scrub on the summit of a lofty hill. The soil was very stony and there was a good deal of large outcropping of rock in the area". Also known from depauperate rainforest.

Comments

G. hemiderma was first identified by F. Mueller (1868) as *Clerodendron linnaei* Thwaites. In view of some "abnormal" characters present in this species, F. Mueller proposed for it a new section "*Hemiderma*" in *Clerodendrum*. Later Benth (1870) recognised this taxon as a new *Clerodendrum* species and named it after F. Mueller's new "section *Hemiderma*" as *Clerodendron hemiderma* F. Muell. ex Benth. The protologue of the new species, however, was prepared by Benth (1870) not F. Mueller. The species authorship, therefore, should go to Benth only. In his comments on this taxon, Benth (1870) remarked that "this plant has a singular resemblance with Cingalese *C. linnaei* Thw. which has the same climbing habit, foliage, and inflorescence, but rather larger flowers, the outer bracts much larger, broader, and foliaceous, and the fruit, although nearly similar in shape, is much more normal, without the flat wing-like bases of the nuts or the persistent axis upon which F. Mueller has founded his sectional character of *Hemiderma*". Subsequently, Benth (1876) identified this taxon with the genus *Glossocarya* and thus transferred it to the latter. The combination of *G. hemiderma* has been attributed by the majority of authors to Benth & Hooker, but although their intention is quite clear, they nevertheless did not formally publish it.

F. Mueller (1868) cited un-numbered collections of *E. Daemel*, *J. Dallachy*, *P. O'Shanesy* and *A. Thozet* from Cape York and Rockhampton. In the protologue of this species, Benth (1870) also cited the above mentioned collections except for *P. O'Shanesy*'s. Instead, he cited *Bowman's* [77] collection from Sellheim River. All of Dallachy's collections of this taxon came from around Rockingham Bay and none from Rockhampton or Cape York Peninsula. Out of all these collections, Daemel's and Dallachy's specimens are found to belong to *G. hemiderma*, and O'Shanesy's to *G. coriacea*. For the identity of other collections see "Typification" of this species.

Benth (1870) described the corolla-tube as "glabrous inside", and a more or less similar view was expressed by Moldenke (1982). In fact, the corolla is glandular and hoary-pubescent outside and distinctly villous in throat.

Moldenke (1974, 1980) recorded this species from Northern Territory, but so far its occurrence in that State has not been confirmed. There is no mention of this taxon in Dunlop's (1987) "Checklist of Vascular Plants of the Northern Territory". Beer & H.J. Lam (1936) cite *L.J. Brass* 5674 from Papua, and note that this is the first record of the genus and species in Papua New Guinea. Williams (1987) recorded this species from pastoral districts Leichhardt and Moreton in Queensland, which areas are outside its presently known distribution range. He presumably included in it the distribution of newly described *G. coriacea* which before the present investigation was known as *G. hemiderma*.

Sometimes, juvenile leaves are smaller and distinctly dentate or shallowly lobed. According to Elliot & Jones (1984), this species has been misidentified and distributed in some herbaria as *Clerodendron* sp.

Affinities

G. hemiderma is nearest to *G. calcicola* Domin and *G. mollis* Wall. ex Griff. in their leaves

and inflorescence being of similar shape and disposition; calyx and corolla pubescent and glandular outside; ovary and capsule glandular and tomentose-hirsute. Nevertheless, *G. hemiderma* may easily be distinguished by its leaf-blades becoming glabrescent-glabrous when mature and pedicels 1-3 mm long. The pedicels in *G. calcicola* and *G. mollis* are generally up to 1 mm long.

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A TAXONOMIC REVISION OF THE GENUS *HUXLEYA* EWART (VERBENACEAE)*

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Abstract

A taxonomic revision of the monotypic genus *Huxleya* is presented and its affinities and distribution are considered. A detailed description of the type species, *H. linifolia*, is supplemented by a habit sketch of a flowering branch and analytical drawings of the flower.

Taxonomic History of the Genus

The genus *Huxleya* was described by Ewart (1912) with one species, *H. linifolia*, the type of which was collected by N. Holtze (No. 1322) from near Port Darwin in Northern Territory, Australia. It was considered nearest to the genus *Faradaya* F. Muell. but due to several distinct characters between these two genera Ewart (1912) proposed for *Huxleya* a new subtribe Oxereae in the tribe Viticeae. The new subtribe for the genus does not seem to have been accepted by any subsequent botanist. In 1917, Ewart & Davies referred the genus to subtribe Euviticeae in the tribe Viticeae. Later, Junell (1934) following Briquet's (1895) classification placed *Huxleya* in the subfamily ("Tribus") Viticoideae tribe ("subtribe") Clerodendreae. This classification was adopted by Moldenke (1959, 1971, 1981) and Bhoj-Raj (1983). The majority of botanists, however, have retained it in the Verbenaceae without reference to any subtribe, tribe or a subfamily. According to Burbidge (1963), *Huxleya* is an "an aberrant genus probably misplaced in this family" i.e. Verbenaceae. However, she did not elaborate further to suggest the correct family for it. The genus is presently classified in the tribe Clerodendreae subfamily Viticoideae in the Verbenaceae and is so far known only by the type species.

HUXLEYA Ewart

Huxleya Ewart in Ewart & B. Rees, Proc. Roy. Soc. Vic. 25 N.S. part 1 (1912) 109; Wangerin, Just's Bot. Jahresber. 40 (1914) 862; Ewart & Davies, Fl. N. Terr. (1917) 282; Fedde & Schuster, Just's Bot. Jahresber. 43 (1922) 158; Junell, Symb. Bot. Upsal. 4 (1934) 111, 203; Mold., Known Geogr. Distrib. Verbenac. edn 1 (1942) 69, 93; Alph. List. Inval. Names (1942) 27; Pl. Life 2 (1948) 34, 65; Known Geogr. Distrib. Verbenac. edn 2 (1949) 153, 186; Résumé Verbenac. etc. (1959) 411; N. Burb., Dict. Aust. Pl. Gen. (1963) 154; F. Barkley, List Ord. Fam. Anthoph. (1965) 76, 174; L.S. Smith, Contrib. Qld Herb. No. 6 (1969) 20; Mold., Fifth Summary Verbenac. etc. 2 (1971) 760; Baines, Aust. Pl. Gen. (1981) 190; Mold., Phytologia 48 (1981) 388; Bhoj-Raj, Rev. Palaeobot. Palynol. 39 (1983) 373.

Type species: *H. linifolia* Ewart & B. Rees, Proc. Roy. Soc. Vic. 25 (N.S.) part 1 (1912) 109.

Erect, procumbent or prostrate plants. Stem branched towards the base, tetragonal. *Leaves* simple, decussate or sub-opposite, exstipulate, elongate-linear or filiform. *Inflorescence* a reduced cyme comprising mostly an axillary solitary flower, sometimes up to 3 flowers in a cyme. *Flowers* rather large, pedicellate, with 2 bracteoles, almost actinomorphic, bisexual, hypogynous. *Calyx* of 5 fused sepals, persistent, inferior, campanulate, deeply 5-cleft. *Corolla* of

*The present treatment of the genus *Huxleya* is the ninth in the series of taxonomic revisions in the family Verbenaceae in Australia (See Munir, 1982, 1984a, 1984b, 1985, 1987a, 1987b, 1989, 1990).

5 fused petals, hypocrateriform; tube up to 30 mm long, uniformly narrow-cylindrical; lobes 5, equally spreading. *Stamens* 4, exserted, inserted in the corolla-tube, almost equal or rarely slightly didynamous, all fertile; filaments filiform; anthers dorsifixed, 2-lobed, lobes free in the lower half, longitudinally dehiscent. *Ovary* bicarpellary, syncarpous, apically distinctly 4-lobed, 4-locular with one anatropous ovule in each cell attached to an axile placenta at or above the middle; style terminal, exserted, filiform, glabrous, with shortly 2-lobed stigma. *Fruit* not seen.

Number of species: World 1; Australia 1

Derivation of name

The genus is named after Thomas Henry Huxley (1825-1895), famous English naturalist and author, friend and champion of Charles Darwin.

Distribution (Map 1)

The genus *Huxleya* is endemic to the northern tropics of Northern Territory in Australia.

Comments

According to Ewart & Rees (1912) and Moldenke (1981) the ovules are "attached to the side near the base" of the ovary in this taxon. During the present investigation, however, the ovules have been found attached to the placenta about the middle of the ovary.

So far, the fully developed fruit in *Huxleya* has not been recorded. By the shape of the mature ovary, however, one could conclude that the fruit in this genus is similar to that of *Clerodendrum* L. which is drupaceous.

In proposing a new subtribe Oxereae for the genus *Huxleya*, Ewart & Rees (1912) wrote that "this genus differs from *Faradaya*, the only other Australian genus of this sub-order, in having the calyx 5-lobed (instead of 2), 5-lobed corolla (instead of 4), equal stamens (not didynamous), ovary 2-lobed (not 4), in being an upright herb (not a woody climber), in the flowers solitary (instead of in terminal panicles). These distinctions are almost sufficient to make an additional subtribe" in the tribe Viticeae of the family Verbenaceae. The present author agrees with most of the above statement by Ewart & Rees (1912) except the number of ovary lobes which are 4 not 2.

No cytological investigation is known to have been done on the species in this genus.

Burbidge's (1963) remark that *Huxleya* is misplaced in the family is not borne out by this study. The species clearly belongs in the Verbenaceae although it is an unusual taxon.

Affinities

Huxleya is closely related to *Oxera* in its inflorescence being cymose, flowers more or less zygomorphic, ovary 4-lobed and fruit drupaceous but splitting into four 1-locular parts. Nevertheless, *Oxera* can easily be identified by its inflorescence being composed of corymb-like cymes, calyx usually 4- (rarely 5-) lobed or -toothed, corolla 4-fid or sometimes slightly bilabiate, fertile stamens 2. Moreover, *Oxera* is endemic to New Caledonia and *Huxleya* to Australia.

There are a few characters common between *Huxleya* and *Faradaya*. Both have cymose inflorescence, almost zygomorphic flowers, large, showy, with a long corolla-tube, 4 (exserted) stamens in each flower, 4-lobed ovary and drupaceous fruit. Nevertheless, *Huxleya* is easily distinguished by being an upright or procumbent herb (not climbing shrub or lianas), in having mostly the axillary solitary flower (instead of terminal or axillary corymbose thyse), the calyx 5-lobed (instead of 2), corolla 5-lobed (instead of 4) and stamens (i.e. filaments) almost equal (instead of didynamous). Moreover, *Huxleya* is endemic to Northern Territory in Australia while *Faradaya* is known to occur in East Malaysia (Sabah), Indonesia, Melanesia, Polynesia,

east to the Fiji and Samoan Islands, and south to the north-eastern tropics of Australia.

Huxleya linifolia Ewart & B. Rees, Proc. Roy. Soc. Vic. 25 N. S. 1 (1912) 109, t. 5; Ewart & Davies, Fl. N. Terr. (1917) 282; Fedde & Schuster, Just's Bot. Jahresber. 43 (1922) 159; Mold., Alph. List Inval. Names (1942) 27; Known Geogr. Distrib. Verbenac. edn 2 (1949) 153, 186; Résumé Verbenac. etc. (1959) 209, 301; L.S. Smith, Contrib. Qld Herb. 6 (1969) 20; Mold., Fifth Summary Verbenac. etc. 1 (1971) 346, 531; Chippendale, Proc. Linn. Soc. N.S.W. 96 (1972) 256; Mold., Phytologia 48 (1981) 389; Sixth Summary Verbenac. etc. (1980) 337; Bhoj-Raj, Rev. Palaeobot. Palynol. 39 (1983) 357, 373, 395; Dunlop, Checklist Vasc. Pl. N. Terr. (1987) 80; Lazarides et al., Checklist Fl. Kakadu Nat. Pk, N. Terr. No. 15 (1988) 26.

Lectotype: N. Holtze 1322, Port Darwin, Northern Australia, 1892 (MEL583548, lectotype designated here; MEL22383, isolectotype!).

Typification

H. linifolia is based on N. Holtze's collection no. 1322 from Port Darwin, comprising two sheets. As no holotype was designated by the authors a lectotype is chosen here. Both syntypes, preserved in Herb. MEL, were annotated and possibly used by the authors in preparing the protologue of this species. Of these, the one with MEL583548 is particularly complete and well preserved, so that it was selected here as the lectotype of this species.

Description (Fig. 1)

Erect or more often procumbent-prostrate perennial herb, (15-) 20-35 (-45) cm long. *Stem* tetragonal, grooved, glabrous, often branched near base, 1-3 mm diam. *Leaves* opposite or sometimes alternate towards base of stem, sessile, narrow-linear, acute, entire with slightly recurved margins, (10-) 15-60 (-80) mm long, 1-3 mm wide, glabrous, sometimes puberulous along margins and beneath, sparsely pitted with minute glands on lower surface. *Flowers* mostly solitary in axils of upper leaves, borne on a long stalk consisting of long peduncle and short pedicel between 2 minute bracteoles and calyx; stalk slender, glabrous (10-) 15-30 (-43) mm long; bracteoles (0.5-) 1-4 (-7) mm long. *Calyx* tubular below, 5-lobed above, 4-8 (-12) mm long, almost glabrous to sparsely puberulous outside, glabrous inside; lobes narrowly lanceolate, acute, 2-6 (-8) mm long, (0.5-) 1-2 mm wide at base; tube widened apically, 1-2 (-3) mm long, 1.5-2 mm diam. at top. *Corolla* white, hypocrateriform; tube narrow-cylindrical, (10-) 15-25 (-30) mm long, 1-2 mm diam., pubescent outside, villous inside; lobes elliptic-oblong to subobovate, glabrous, 6-10 (-15) mm long, 3-6 (-8) mm wide. *Stamens* exserted; filaments white, attached to throat of corolla-tube, filiform, glabrous, (3-) 4-6 mm long; anthers oblong, somewhat sagittate with a bluntly pointed tip, 1.5-2 mm long. *Ovary* globose, glabrous, apically 4-lobed, 1-2 mm diam.; style exserted, filiform, glabrous, 18-30 (-35) mm long; stigma deeply bifid. *Fruit* not seen.

Specimens examined

AUSTRALIA: NORTHERN TERRITORY: *Bowman* 6, Berry Springs, 10.v.1984 (DNA); *Burbidge* 5281, Berrimah Agricultural Research Farm near Darwin, 23.iv.1956 (CANB); *Byrnes* 1282, Howard Springs, 20.i.1969 (BRI, CANB, DNA, L, NSW, NT); *Byrnes* 2460, 37 km S Darwin, 13.i.1972 (CANB 2 spec., DNA, NT); *Byrnes* 2468, Mt Bunday Rd, 18.i.1972 (CANB, DNA, NT); *Craven & Whitbread* 8004, 80 km WNW Jabiru, Kakadu National Park, 21.iii.1981 (CANB); *Dunlop* 4667, Jabiru, 31.i.1978 (DNA); *Dunlop* 6793, Tabletop Range, 19.v.1985 (DNA); *Eddy* 5204, Elizabeth River near Darwin, 27.i.1958 (BRI, DNA, MEL, NSW); *Holtze* 795, Darwin area, undated (MEL); *Holtze* 1322, Port Darwin, 1892 (MEL583548 lectotype, MEL22383 isolectotype); *Holtze* 2028, loc. cit. 5.iv.1911 (NSW); *Lazarides* 7742, c. 9 km E Oenpelli Mission, 17.ii.1973 (BRI, CANB, DNA, K, L); *Muspratt* SSO 220, Elizabeth River flood plain, 22.i.1963 (DNA); *Muspratt* SSO 340, Elizabeth River flat, Noonamah, 25.i.1963 (DNA); *Rankin* 1204, Berry Springs near Goose Lagoon, 6.iv.1978 (DNA); *Rankin* 1709, Koolpinyah Sand Pit, Howard River, 17.i.1979 (CANB, DNA, K); *Robinson* R27, c. 10 km down Humpty Doo Rd, 18.iii.1964 (DNA); *St. John*



Fig. 1. *Huxleya linifolia* Ewart & Rees (A-H, N. Byrnes 1282: DNA). A, habit sketch of a flowering branch; B, enlarged portion of tetragonal stem; C, flower with two bracteoles; D, flower with calyx and corolla vertically cut open showing androecium and gynoecium; E, ovary; F, transverse section of ovary; G, stamen showing front view of dehiscent anther; H, stamen showing back view of anther.

24235, c. 36 km S Darwin, 24.xi.1950 (BISH); *Wightman* 231, near Holmes Jungle, 25.iii.1983 (DNA); *Wightman* 2550, Black Jungle, Darwin, 10.ii.1986 (BRI, CANB, DNA, PERTH).

Distribution and ecology (Map 1)

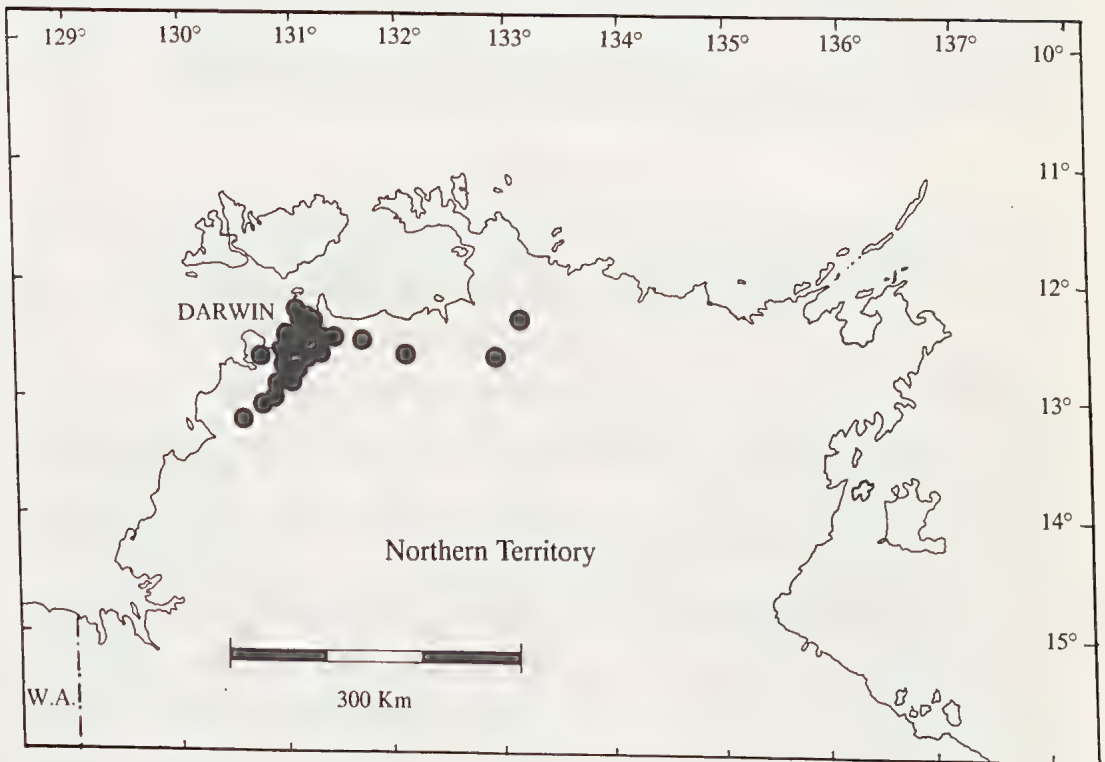
H. linifolia is endemic to northern part of Northern Territory where it has been recorded chiefly from Darwin region. The majority of localities are towards east and south of Darwin with a few collections from inside the Kakadu National Park. The eastern-most locality is near the township of Oenpelli and the most southerly one near Tabletop Range. The overall known distribution is between 12° and 14°S and between 130° and 134°E.

It has been recorded to grow on "seasonally swamp sandy soil" and on "sandy laterite soil". Also recorded from moist "woodland", "flood plain" and "on black to grey alluvial soil near creek".

Comments

The protologue of this taxon is based on one of Nicholas Holtze's collection (no. 1322) of 1892, describing the ovary as "2-celled, each cell containing one anatropous ovule attached to the side near the base". A later collection of this species by N. Holtze (no. 2028) from the type locality, gathered in 1911, has a hand-written note and drawing of ovary which describe the ovary as "4-celled" with "one ovule in each cell". The latter description seems to conform with the present studies in the species.

Ewart & Rees (1912) and Moldenke (1981) described this species as "an erect herbaceous plant". According to most collectors' field notes, however, it is a prostrate or procumbent herb growing in "seasonally flooded" or "marshy sandy soil". According to present studies, this species does have an erect habit but is more often prostrate or procumbent.



Map 1. Distribution of the genus *Huxleya* Ewart.

Moldenke (1981) cited literature references and noted some information about the genus and its only species, but like Junell (1934), he too did not see any authentic material of this apparently rare species.

In this taxon, the calyx-lobes are mostly about double the length of calyx-tube while the corolla-lobes are almost half the length of its corolla-tube.

The axillary, usually solitary flowers are borne on a long slender stalk with two minute bracteoles a short distance below the calyx. The part of flower-stalk between calyx and bracteoles is a pedicel, the rest being a peduncle of a single-flowered inflorescence. The bracteoles are generally not easily visible to the naked eye, therefore, pedicel and peduncle of each flower are here treated here as a flower-stalk. Because of very small size and caducous nature of bracteoles, Ewart & Rees (1912) and Moldenke (1981) recorded the flowers "without bracteoles".

In their publications, Ewart & Rees (1912) and Moldenke (1981) described the stigma "reaching to the opening of the corolla-tube", but present observations show that the stamens and style generally protrude well beyond the rim of the corolla-tube. Their observations have been due to the scarcity of flowering material, as Ewart & Rees (1912) saw only the two type specimens and Moldenke (1981) saw no authentic material at all. Moldenke's entire discussion on this taxon seems to be based on previously published works, particularly the protologue of this species.

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Thanks are also due to the Directors/Curators of the following herbaria for loan of herbarium specimens: BISH, BRI, CANB, DNA, K, L, MEL, NSW, NT, PERTH.

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A CONTRIBUTION TO THE TAXONOMY OF *TRIGLOCHIN* (JUNCAGINACEAE)

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Abstract

Triglochin ovoideum J. Black is shown to be a synonym of *T. hexagonum* J. Black. *T. muelleri* Buchen. is endemic to Western Australia, previous records of this species for South Australia being due to misdeterminations.

Triglochin ovoideum

Triglochin ovoideum J. Black has been recorded only from a few localities along the Murray River within South Australia and was therefore treated as a vulnerable species by Leigh et al. (1981). In its vegetative and floral morphology it cannot be separated from the more widespread *T. hexagonum* J. Black, and was stated by Black (1940, 1943) to differ only in the fruit which was ovoid with the fertile carpels lacking the paired scarious wings, each two-pointed, which characterise the latter species.

Examination of the type of *T. ovoideum* revealed narrow scarious wings developed from the inner faces of the fruiting carpels, as had been noted by Black in his autograph comments on the type sheet. These wings are often produced into two points on each side of the carpel, and differ only in length from those in specimens which Black had accepted as *T. hexagonum*. To provide a quantitative measure of difference in this character, a morphometric study was made of fruiting carpels from nine collections representing a range from the type of *T. ovoideum* to material from inland Western Australia with strongly winged carpels. Each collection comprised several individuals and was treated as a population sample from which 10 carpels were selected at random, manifestly unripe or damaged fruits being rejected. A binocular microscope with an eyepiece graticule was used at a magnification of 40x (Fig. 1.) to measure the following linear dimensions for each carpel:

A: Maximum width (across the lateral points if present).

B: Width across the centre of the carpel.

C: Overall length.

Table 1. Values of (A-B)/C for the nine collections sampled.

Collection	Mean	Standard deviation (S)
Lake Bonney, C.D. Andrew (AD 98733020)	0.04	0.04
Purnong, R. Davies et al 136	0.10	0.04
Purnong, R. Davies et al 137	0.11	0.04
Blanchetown, Eichler 18177	0.12	0.04
Big Swamp, Alcock 2643	0.16	0.06
Lake Bonney, C.D. Andrew (AD 97826054)	0.19	0.06
Palm Valley, Latz 791	0.30	0.05
Margaret Overflow, Weber 5697	0.31	0.11
Beru Pool, Chinnock 756	0.46	0.04

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**BIOSIS Research Propriety Ltd, 51 Camberwell Road, Hawthorn East 3123.

The relation $(A-B/C)$ was chosen to represent the development of the lateral points in proportion to the size of the carpel; this was calculated for each carpel measured and expressed as a mean for each collection (Table 1). As shown in Fig. 2, there is a continuous variation in this character among the nine collections. There is a tendency for the value of $(A-B/C)$ to be highest in the western and inland portion of the geographic range and lowest on the Murray River. However, the character does not support a qualitative division into two species despite the incomplete knowledge of variation in *T. hexagonum* in Western Australia and the Northern Territory.

In the absence of any other characters to separate them, *T. hexagonum* and *T. ovoideum* are here united under the former name, for which an emended description is supplied.

Triglochin hexagonum J. Black, Trans. R. Soc. S. Aust. 49:270 (1925).

Type: "near Lake Bonney, River Murray, H.W. Andrew" (Lecto: AD 97826054 p.p.! possible iso: K n.v.). There are two elements on AD 97826054 used by Black in preparing the protologue. The fruiting specimen labelled 'A' by Black is the only one to which the type citation can apply, and fruit characters were used to separate this species from other annual *Triglochin*. This is therefore designated as the lectotype.

Material grown by Black in a pot and pressed in September, 1925 was used in preparing drawings of the whole plant and floral structure. Another specimen on the sheet, dated February, 1926, cannot be type material due to the date. Nor can two collections by R. Tate, which Black did not mention in his protologue.

Although the collection was attributed by Black to H.W. Andrew, both this specimen and the specimen in K are annotated "C.D. Andrew". As C.D. Andrew (née Black) was the wife of H.W. Andrew who supplied specimens to Black, this imprecision may be explained.

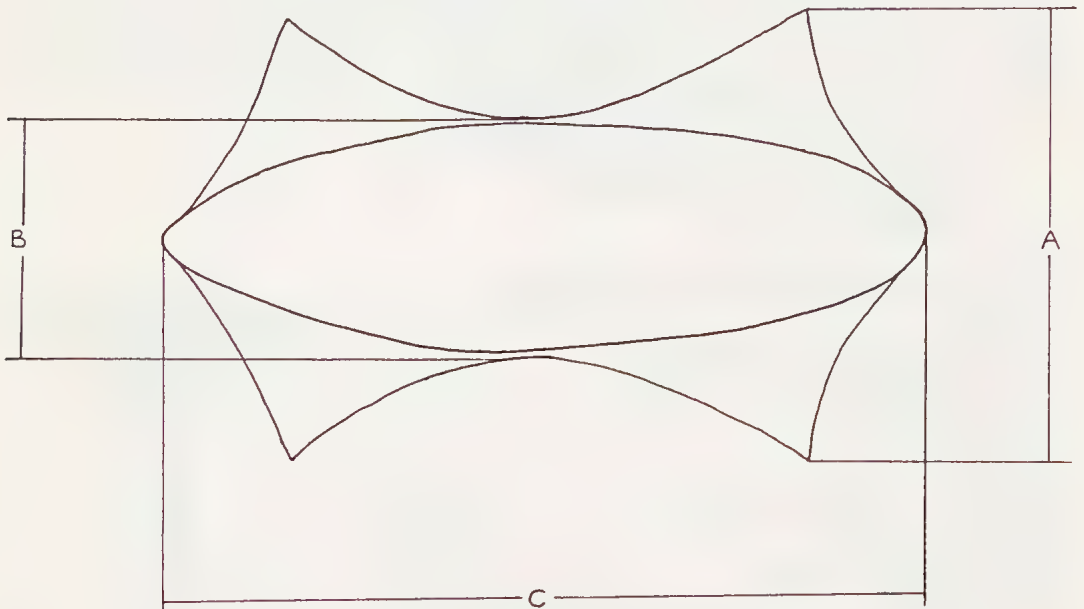


Fig. 1. Fertile fruiting carpel of *T. hexagonum* (diagrammatic) showing the linear distances A, B and C.

T. ovoideum J. Black, Trans. R. Soc. S. Aust. 64:371 (1940).

Type: "beside Lake Bonney, River Murray, xii.1924, C.D. Andrew" (Lecto: AD 98733020 p.p.!; possible iso: MEL 1551076!; K n.v.). The sheet AD 98733020 includes a fruiting collection labelled "Lake Bonney (Barmera) River Murray 1924 C.D.A." This is here designated the lectotype. MEL 1551076 is apparently a portion of the same collection and was labelled "co-type" by Black although the date is given as xi.1924 on the label. AD 98733020 also includes material grown in cultivation and pressed in 1925.

Annual or ephemeral herb. *Stem* extremely short, branching from the lower leaf axils to form a dense tuft. *Leaves* numerous, basal, obscurely distichous; sheaths equitant, 2.5-8 mm long, membranous, microscopically scabrous on the midvein, ending abruptly in two shortly acuminate auricles; laminae filiform, terete, lax, 8-70 mm long, glabrous; apex obtuse. *Scapes* suberect, filiform, terete, 6-70 mm long, glabrous. *Raceme* 6-42-flowered, initially compact, becoming looser in fruit, ultimately 5-40 mm long. Terminal *flower* bisexual; outer tepals 3, patent, obovate, c. 1 mm long, white; inner tepals 3, erect, ovate, very short; outer *stamens* 3, with suborbicular anthers c. 0.5 mm wide; inner stamens 3, smaller. All other flowers female; tepals 3-5, unequal, lanceolate, 0.2-0.5 mm long, membranous, persistent. *Fruits* 1-2.2 mm long, glabrous, stramineous, on pedicels 0.25-1 mm long. *Sterile carpels* 3, fused, forming a persistent membranous columella 1-2 mm long. *Fertile carpels* 3, acute, dorsally convex and smooth, ventrally concave with scarious lateral wings which may be vestigial, or prominent and produced into two pairs of triangular points up to 0.4 mm long giving the carpel a more or less hexagonal outline.

Distribution

T. hexagonum has been collected in Western Australia, Northern Territory, South Australia and Victoria. In South Australia, collections were from the Northwestern, Lake Eyre, Eyre Peninsula and Murray regions.

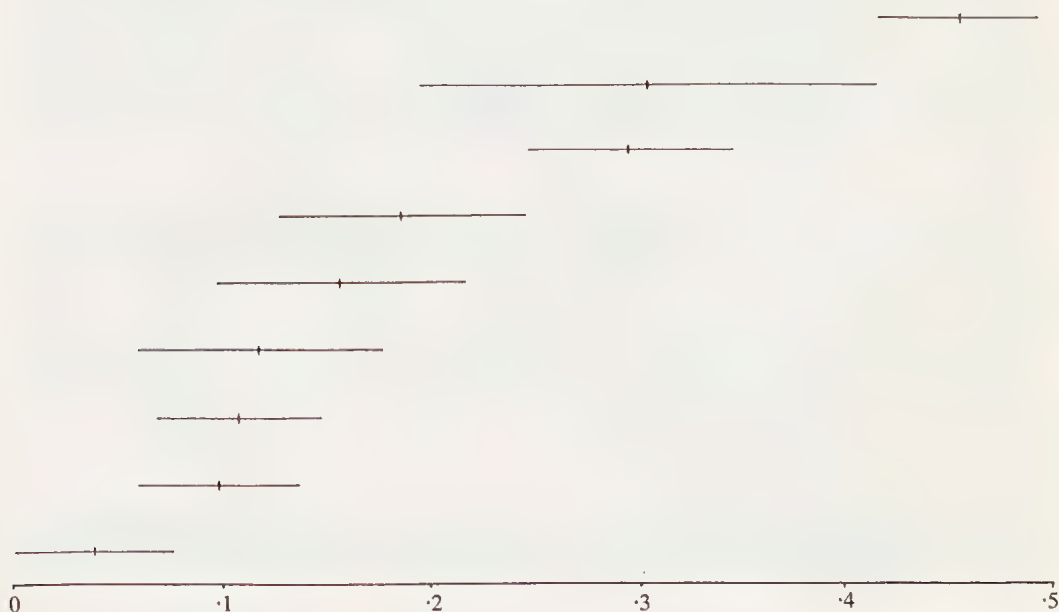


Fig. 2. Mean values of (A-B)/C for each collection; bars represent one standard deviation each side of the mean. 1, Lake Bonney, C.D. Andrew (AD 98733020); 2, Purnong, R. Davies et al. 136; 3, Purnong, R. Davies et al. 137; 4, Blanchetown, Eichler 18177; 5, Big Swamp, Alcock 2643; 6, Lake Bonney, C.D. Andrew (AD 97826054); 7, Palm Valley, Latz 791; 8, Margaret Overflow, Weber 5697; 9, Beru Pool, Chinnock 756.

Ecology

Habitats include margins of semi-saline wetlands along the Murray; swamps on southern Eyre Peninsula; and edges of streams in mountain ranges, intermittently flooded flats and sandy saline outwash areas in Central Australia. Soils at collection sites varied from wet sands to black clayey silts. Associated vegetation included *Atriplex paludosa* association, *Halosarcia* dwarf open-shrublands, and open-herblands or sparse herblands dominated by *Mimulus repens* and surrounded by *Muehlenbeckia cunninghamii*. Flowering occurs from October to March in southern South Australia, but opportunistically throughout the year in Central Australia.

Specimens examined

WESTERN AUSTRALIA: Beru Pool, Yelma Station, 5.ix.1973, *R.J. Chinnock* 756 (AD 97347283); Lake Annean, 21.viii.1960, *A.S. George* 924 (PERTH); c. 3 miles E of North-West Cape lighthouse, 3.vi.1961, *A.S. George* 2519 (PERTH).

NORTHERN TERRITORY: Palm Valley, 28.ix.1970, *P.K. Latz* 791 (AD 97107805); 9 km E Rabbit Flat, 7.vii.1980, *P.K. Latz* 8458 (MEL 576426).

SOUTH AUSTRALIA: Big Swamp, Hd. of Uley, 22.ii.1969, *C.R. Alcock* 2643 (AD 96930264); River Murray near Yalco Lagoon, 25.iv.1970, *W.R. Barker* 795 (AD 97109163); Murbko, lower Murray River, 19.ii.1973, *R.J. Chinnock* 50 (AD 97320058); 2 km NW Purnong, 1.3 km SE of main road, 4.xii.1986, *R. Davies, D. Cooke & P. Green* 136 (AD); 1 km NW Purnong, 2.9 km SE of main road, 4.xii.1986, *R. Davies, D. Cooke & P. Green* 137 (AD); Purnong Landing, lagoon on W side of River Murray, 3.iv.1958, *H. Eichler* 14905 (AD 97615462); Blanchetown, River Murray flats, 25.iii.1965, *H. Eichler* 18176 (AD 96649104); Blanchetown, 3.iv.1965, *H. Eichler* 18177 (AD 96649085); Margaret Overflow, c. 5 km W Curdimurka, 3.x.1978, *J.Z. Weber* 5697 (AD 97341324); Mannum, 5.iii.1883, n. coll. (AD 97507203).

VICTORIA: Lochiel Salt Lake, NW Dimboola, 20.ix.1968, *A.C. Beauglehole* 28559 (MEL 1515863).

Triglochin muelleri

Triglochin muelleri was first recorded for South Australia by Black (1925) on the basis of the collection from Lake Bonney which he later redetermined and used as the holotype of *T. ovoideum* (Black, 1940) after having seen type material of *T. muelleri* Buchen. from MEL. However, the misconception that *T. muelleri* was present in South Australia had become established and the name was misapplied to material of *T. trichophorum* Nees ex Endl. The descriptions of *T. muelleri* in Black (1943) and Randell (1986) were based on the specimens of the latter species cited below.

T. muelleri is characterised by virtually sessile, obtuse, ellipsoidal fruits "scarcely 2 mm long" (Buchenau, 1903); in type material in MEL (Vasse River, Western Australia, n.d., *A. Oldfield*) the fruits are 1.3-1.8 mm long. The South Australian specimens here referred to *T. trichophorum* have acute, narrow-ovoid fruits 2.0-2.5 mm long on pedicels 1.0-2.5 mm long in racemes which are shorter and denser than the spikes of *T. muelleri*.

No collections of *Triglochin* from South Australia in AD or MEL are referable to *T. muelleri*, and it is concluded that this species is endemic to Western Australia. Within that State it is restricted to the coastal plain in the Perth and Busselton areas (Rye, 1987).

Specimens examined

WESTERN AUSTRALIA: Twin Swamps Reserve, 17.ix.1970, *A.S. George* 10392 (PERTH); Wonnerup, 16.x.1960, *R.D. Royce* 3369 (PERTH); Wonnerup, 17.x.1952, *R.D. Royce* 3873 (PERTH); Busselton district, 3.xi.1955, *R.D. Royce* 5172 (PERTH); Abba River, Busselton district, 18.x.1956, *R.D. Royce* 5635 (PERTH); Cannington, x.1921, *C.H. Sargent* s.n. (PERTH).

Triglochin trichophorum

Triglochin trichophorum Nees ex Endl., in Lehm., Pl. Preiss. 2:54 (1846).

Type: Rottnest Island, W.A., 20.viii.1839, *L. Preiss* 2411 (Iso: MEL!).

Specimens examined

SOUTH AUSTRALIA (all formerly determined as *T. muelleri*): Corny Point, Yorke Peninsula, 1.x.1957, *H. Eichler 14181* (AD 95818032); cultivated from Pearson Island material, *H. Eichler 20664* (AD 98202256); Venus Bay, Eyre Peninsula, 16.ix.1938, *C.W. Johns s.n.* (AD 97701246); Pearson Island, ix.1923, *T.G. Osborn s.n.* (AD 97507205 p.p.); Hiltaba homestead, Eyre Peninsula, 5.ix.1972, *A.G. Spooner 2318* (AD 97246109); near Hell's Gates, Younghusband Peninsula, 10.ix.1974, *L.D. Williams 5733* (AD 97524422).

WESTERN AUSTRALIA: Cape Naturaliste, 17.x.1978, *T.E.H. Aplin 6446* (PERTH); 25 miles S Mandurah, 5.vii.1969, *A.S. George 9370* (PERTH); Yalgorup National Park, 19.ix.1981, *G.J. Keighery 4030* (PERTH); Busselton, 30.ix.1953, *R.D. Royce 4553* (PERTH); Rottnest Island, 20.ix.1956, *R.D. Royce 5467* (PERTH); Nambung National Park, 14.ix.1972, *R.D. Royce 10307* (PERTH); Keru Island, 2.ix.1972, *N. Sammy 52* (PERTH).

Acknowledgements

We wish to thank the State Herbarium of South Australia, where this paper was prepared, and the National Herbarium of Victoria for the loan of specimens; also Jean Turner and David Potter for assistance with fieldwork. Thanks are also due to Terry Macfarlane, who checked possible type material at Kew Herbarium.

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NOTES ON THE GENUS *MICROTIS* (ORCHIDACEAE) IN WESTERN AUSTRALIA WITH THE DESCRIPTION OF TWO NEW TAXA

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Abstract

A new key is provided for the ten species of *Microtis* recognised for Western Australia. Reasons are given for the reinstatement of *M. media* R. Br. and an expanded description given. The new combination *M. media* ssp. *densiflora* (Benth.) R. Bates is made and a new subspecies, *M. media* ssp. *quadrata* as well as *M. familiaris*, a new species with no close similarity to any other, is described. The occurrence of *M. unifolia* (Forster f.) Reichb. f. sens. str. in Western Australia is questioned. Additional notes are provided for: *M. alba*, *M. atrata*, *M. globula*, *M. orbicularis*, *M. parviflora*, *M. pulchella* and *M. rara*.

Introduction

Bates (1984) accepted only seven species of *Microtis* from Western Australia, but indicated the presence of several undescribed taxa and recognised that *M. unifolia* sens. lat. was possibly a complex of many taxa. This is confirmed here with the acceptance of *M. media* as a species with at least three subspecies all endemic to Western Australia and previously included under *M. unifolia*. A. Brown in 1985 collected plants of an obvious new species and sent material together with photographs to the author, who made further collections in 1987. This new species, previously also collected by A.S. George, is here described as *M. familiaris*. Bates (1986) confirmed the presence of *M. parviflora* in semi-arid Western Australia and speculated about many *Microtis* variants that could be attributed to hybridising and subsequent cloning through apomixy to form numerous microspecies. For this reason only widespread and relatively constant forms have been given recognition here in the form of taxa despite the author personally recording over 20 variants during field work in Western Australia in 1981, 1984 and 1987 for a total of 14 weeks.

Key to the species of *Microtis* in Western Australia

1. Labellum without callosities2
1. Labellum with swellings or callosities3
2. Flowers yellow-green drying back; labellum elliptic, lamina flat; lateral sepals spreading *M. atrata*
2. Flowers green or red and green, not drying back; labellum orbicular, lamina concave; lateral sepals hidden below labellum *M. orbicularis*
3. Labellum margins with granular excrescences4
3. Labellum margins entire, crenulate or thickened but without granular excrescences5
4. Flowers usually white or almost so; labellum clearly bilobed and with a long slender basal callus *M. alba*
4. Flowers green, yellow-green or pale green; labellum not strongly bilobed, basal callus not much longer than broad *M. media*
5. Flowers clear white *M. pulchella*
5. Flowers greenish6
6. Flowers globular due to lateral sepals and petals curving inward *M. globula*
6. Flowers widely expanded; lateral sepals reflexed to revolute7

- 7. Lateral sepals curved back to clasp ovary *M. familiaris*
- 7. Lateral sepals revolute, not clasping the ovary 8
- 8. Labellum almost triangular, margins not crenulate, with apical callus hardly developed *M. parviflora*
- 8. Labellum oblong, margins crenulate, with apical callus well developed 9
- 9. Flowers crowded; labellum less than twice as long as broad; petals partly hidden within dorsal sepal *M. unifolia* sens. lat.
- 9. Flowers well spaced; labellum more than twice as long as broad; petals spreading widely below dorsal sepal *M. rara* (*M. brownii* sens. strict.)

New taxa and combinations

M. familiaris R. Bates, sp. nov.

M. rara floribus minutissimis, labelli margine paene integris, sepalis lateribus implectentibus ovarium caulemque superum lateraliter compressum differt.

Holotype: Boat Harbour, in surrounds of Owingup Swamp, 17.xii.84, *A.P. Brown 171* (AD; iso.: PERTH).

Plants 10-20 cm high, very slender, almost wiry; tuber small, 6-9 mm diam., globular, glabrous, formed at end of 2-8 cm long 'dropper roots'. *Leaf* linear, terete, subtended at soil level by a cylindrical hyaline sheath 1-2 cm long, wholly green, apex erect, shorter than inflorescence. *Scape* green, filiform, emerging from the leaf 1-4 cm above soil level, average diameter 2 mm, laterally compressed above, appearing oblong in cross section. *Flowers* 10-20, very small, pale green, suberect, in loose irregular spike 3-5 cm long, each subtended by an ovate, acuminate bract c. 2 x 1 mm; pedicel 0.5-1.5 mm long, ovary ellipsoid, 4-5 mm long, strongly ribbed, not curved. *Dorsal sepal* ovate, apiculate, 2.2-2.6 x 1.4-2 mm, shallowly galeate below, arched forward to give flowers a slightly nodding appearance; lateral sepals lanceolate, 2-0.8 mm, swept backwards, clasping the ovary in a most distinctive fashion. *Petals* linear-lanceolate, falcate, 1.5 x 0.3 mm, partly within galea. *Labellum* oblong, 2-0.8 mm, abruptly bent downwards at the base and parallel with but not appressed to ovary, almost entire, narrower towards the truncate apex; basal calli saddle-shaped, minutely tuberculate on their apical margins and with a conical nectar pit at the base, apical callus minute, little more than a granular roughening of the apical median surface. *Column* 0.3 x 0.2 mm, auricles quadrate, less than 0.1 x 0.1 mm; anther about 0.1 mm high, without mucro; stigma reniform; caudicle insignificant. Fig. 1.

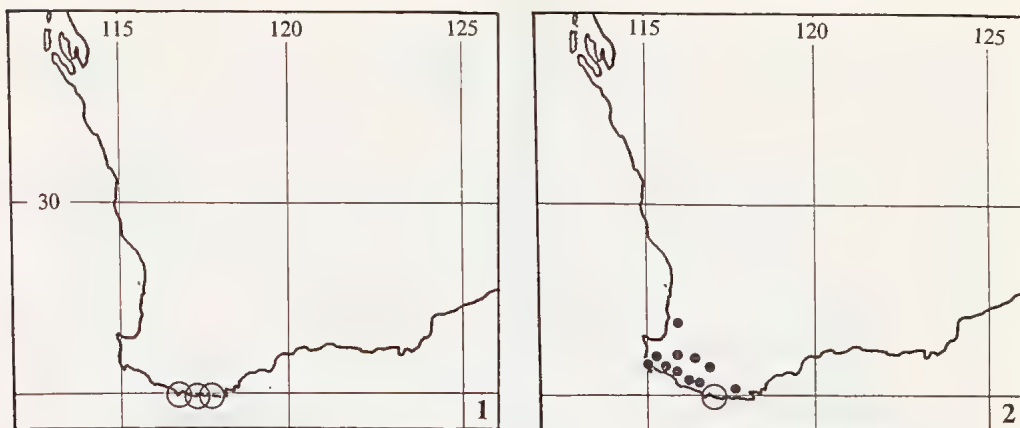
Flowering: December and January; the blooms with a faint sweet fragrance only noticeable at temperatures above 25°C.

Distribution and ecology (Map 1)

This species almost parallels the distribution of several other *Microtis* species notably *M. pulchella* and *M. globula*. These occur only in a narrow coastal strip from near Albany to east of Augusta, a distance of about 300 km.

The species is found only in coastal peat bogs with low heath and sedges, usually near running water and in the company of other *Microtis* species, but is rare. It forms small to extensive colonies, probably by vegetative increase, and flowering only after burns, particularly summer wildfires. *M. familiaris* was located in only four of about 40 similar burnt peat bogs in the Nornalup - Northcliffe area in December 1987, in all cases with *M. pulchella* present, in two cases *M. globula* and once with *M. rara*, *M. media* and *M. alba*.

Conservation status: 3RC.



Map 1. Distribution of *M. familiaris* R. Bates. Map 2. Distribution of *M. media* R. Br. ssp. *quadrata* R. Bates O; ssp. *densiflora* (Benth.) R. Bates ●.

Notes

The very low leaf fistula, the remarkably compressed upper scape and rhachis, the very small flowers (which are about half the size of its closest ally *M. rara*), the unique ovary-clasping lateral sepals and the almost entire labellum margins make this a distinct species.

A. Brown (pers. comm. 1985) collected and photographed plants which were somewhat intermediate between *M. alba* and *M. familiaris*; they were growing at the type locality of *M. familiaris*. In view of the disparity in flower size of the two species there must be some doubt as to the interpretation of hybrids. Further work is required to ascertain whether the plants were indeed hybrids or represent a new taxon.

Etymology

The specific epithet is derived from Latin *familiaris*, friendly, being an allusion to the observation that the species grows with large populations of other *Microtis* species such as *M. pulchella*, *M. globula* and *M. rara*.

Collections seen

WESTERN AUSTRALIA; 20 km W Crystal Springs, burnt swamp along drainage line, 10.xii.1987, *R. Bates* 13212 (AD); 6 km SE Walpole, burnt swamp near sea, 11.xii.1987, *R. Bates* 13272 (AD); 10 km SE Nornalup, burnt swamp near sea, 11.xii.1987, *R. Bates* 13278 (AD).

M. media R. Br., Prod. 321 (1810) (for full synonymy and references see Bates, J. Adelaide Bot. Gard. 7 : 82 (1984).

Type: King George Sound, 1801, *R. Brown s.n.* (lecto. designated here: BM!, islecto: BM!; Oyster harbour, xii.1801, *R. Brown s.n.* (syn.: BM!)

Typification

The lectotype designated here is the largest and most intact specimen on a sheet of three. It is marked 'a' and best fits the original description. The selection of the lectotype was deemed necessary because of the considerable variations, particularly in labellum structure of the type specimens. The lectotype sheet bears the Bennett number 5593 and a label "3 *Microtis media* prodr. 321, King George Sound, 1801 RB". Bates (1984) had not seen this specimen.

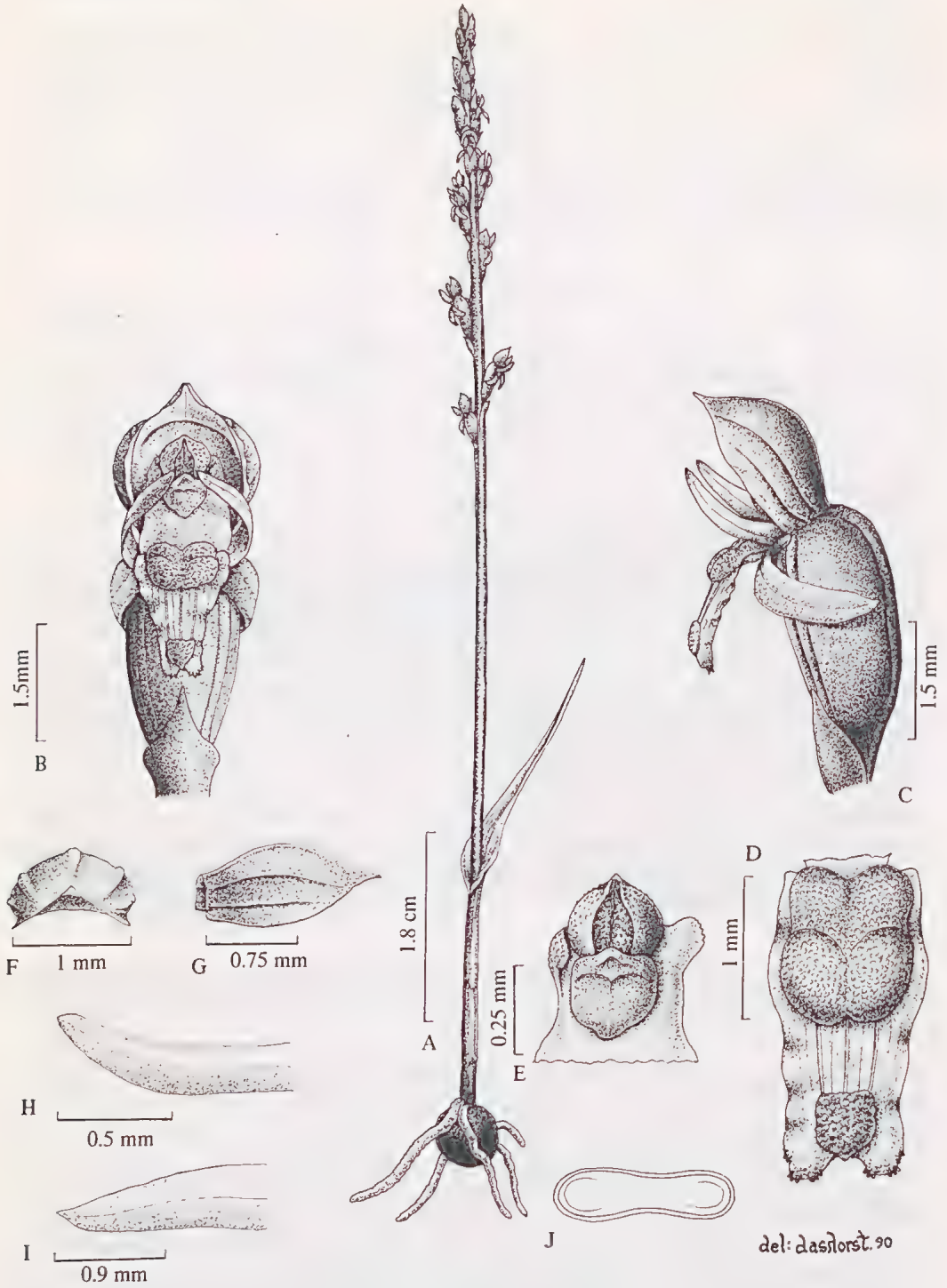


Fig. 1. *Microtis familiaris* R. Bates, based on *Bates 13212*. A, habit; B, flower in front view; C, flower in side view; D, labellum; E, column; F, dorsal sepal in top view; G, dorsal sepal in side view; H, lateral sepal; I, petal; J, transverse section through upper scape.

The Oyster Harbour collection has the Bennett No 5597. There are four specimens on it, marked a-d, and determined by A.S. George (16.xi.1968) as agreeing with the "holotype" of *M. media* and indicated by him as "probable isotypes", but they are all more slender than the lectotype and two are very different (smaller flowers, shorter callosities) as to suggest they might even represent a different taxon. This sheet also contains the lectotype of *M. alba* R. Br.

Plant 15-80 cm high, slender to robust, wholly greenish, glabrous, mucilaginous. *Leaf* exceeding inflorescence or not, but often damaged, 2-6 mm wide near base, apex lax; fistula 5-20 cm above the soil level, not much inflated. *Scape* 5-40 cm long, 2-5 mm diam. *Flowers* pale green, up to 150 in a slender to dense spike 5-20 cm long; pedicel about 1 mm long. *Ovary* pyriform, 3-6 x 2-4 mm; subtending bract ovate-lanceolate, acute, 2-3 x 1.5 mm. *Dorsal sepal* ovate to ovate-lanceolate, 1.5-3 x 1.5-2.5 mm, \pm horizontal, galeate, with a short upturned apiculus; lateral sepals oblong-lanceolate, 2.5-3 x 1-1.5 mm, recurved to strongly revolute. *Petals* lanceolate-falcate, 1.5-2 x 0.6-1 mm, subacute, spreading just below the dorsal sepal or partly within it. *Labellum* \pm oblong, 1.5-3 x 1-2 mm, margins with at least some rounded granular-papillose excrescences; lamina with 3 rather variable callosities, the basal two paired, the apical one granular. *Column* 0.5-1.5 mm high, ovate; auricles quadrate, 0.2 x 0.3 mm; anther retuse.

Notes

Noticeable features of *M. media* include the presence of irregular, granular excrescences on the labellum margin, very long comma-shaped basal calli and a very shallow dorsal sepal. These are clearly not features of *M. unifolia* or indeed of any species outside Western Australia and for this reason *M. media* is here reinstated as a species distinct from *M. unifolia* and apparently endemic to Western Australia.

It is, however, an extremely variable species particularly in labellum size, length and shape. Extensive field work by the author has shown that although some of the variants are highly localised and possibly clonal in nature (Bates 1985), there are at least three widespread forms with discrete geographical range, habitat preference and flowering time, and these are here described as separate subspecies. It should be noted that one of these subspecies (*M. media* ssp. *quadrata*) shows some of the characters of *M. unifolia*, namely the short basal callus on the labellum and a short concave dorsal sepal.

Key to the subspecies of *M. media*

1. Labellum thin textured, margins almost entire except for minor granular excrescences, apical callus much reduced. b. ssp. *densiflora*
1. Labellum thick textured with many very obvious marginal excrescences, apical callus distinctly raised and well marked 2
2. Flowers yellow-green; dorsal sepal shallow; labellum basal callus longer than broad a. ssp. *media*
2. Flowers green; dorsal sepal distinctly concave; labellum basal callus as broad as long c. ssp. *quadrata*

a. ssp. *media*.

Plant 10-80 cm tall, slender to robust, yellow-green. *Dorsal sepal* ovate-lanceolate, 2-2.5 x 1.5-2 mm, shallowly galeate, not ribbed, apiculate; lateral sepals revolute, to 3 mm long. *Petals* acute, to 1.8 mm long. *Labellum* oblong, 2-3 x 1.5-1.8 mm, thick textured, recurved, margins with numerous round to irregular, granular-papillose excrescences of varying sizes; basal callus longer than broad, shaped like a toilet seat, apical callus variable but distinctly raised. *Column* 1 mm high, anther mucronate, caudicle 0.2 mm long. Fig. 2A-E.

Flowering

September to January depending on latitude, habitat and soil moisture. The flowers often have a faint sweet perfume. Flowering freely without fires in open situations but requiring fire to initiate blooming in very poor soils or amid dense vegetation.

Distribution and ecology

Common, widespread and variable taxon endemic to south-west Western Australia from the Murchison River in the north to Israelite Bay in the south-east. Usually in soils which are boggy for at least part of the year (or about rock-outcrops inland) in a wide variety of habitats from coastal heathland and swamps to along inland watercourses.

Conservation status: common and well conserved.

Selected specimens (from 56 seen)

WESTERN AUSTRALIA: York, 1903, *C. Andrews s.n.* (PERTH); Yarrowee near Jarnadup, 5.xii.1921, *I. Knox-Peden* sub *Rogers* 2203 (AD); Robinsons Hill, Albany, 18.xi.1919, *A. Syme-Johnson s.n.* (AD); Fitzgerald River, 7.xi.1984, *C. Martin* 4792 (AD).

b. ssp. *quadrata* R. Bates, ssp. nov.

a *M. media* ssp. *media* sepalo dorsalo concaviore atroviridi, floribus crassioribus; labello brevior et latior excrecentiis marginalis aequaliter dispositis sepalisque lateralibus indistincte revolutis differt.

Holotype: Clay swamp south-east Nornalup, 12.xii.1987, *R. Bates* 13277 (AD; iso.: PERTH, wet coll. AD).

Plant 30-80 cm tall, robust, usually green. *Dorsal sepal* shortly ovate, 3-3.5 x 2.5 mm, deeply concave below, lightly ribbed above, shortly apiculate; lateral sepals not strongly revolute, to 3 mm long. *Petals* obtuse, to 1.8 mm long. *Labellum* almost quadrate, 2-2.5 x 1.7-2 mm, thick textured, strongly recurved against ovary, margins with very regular excrescences, basal callus about as long as broad, apical callus strongly raised. *Column* 1.5 mm high, caudicle 0.2 mm long. Fig. 2L-P.

Flowering: December and January; flowers not distinctly perfumed.

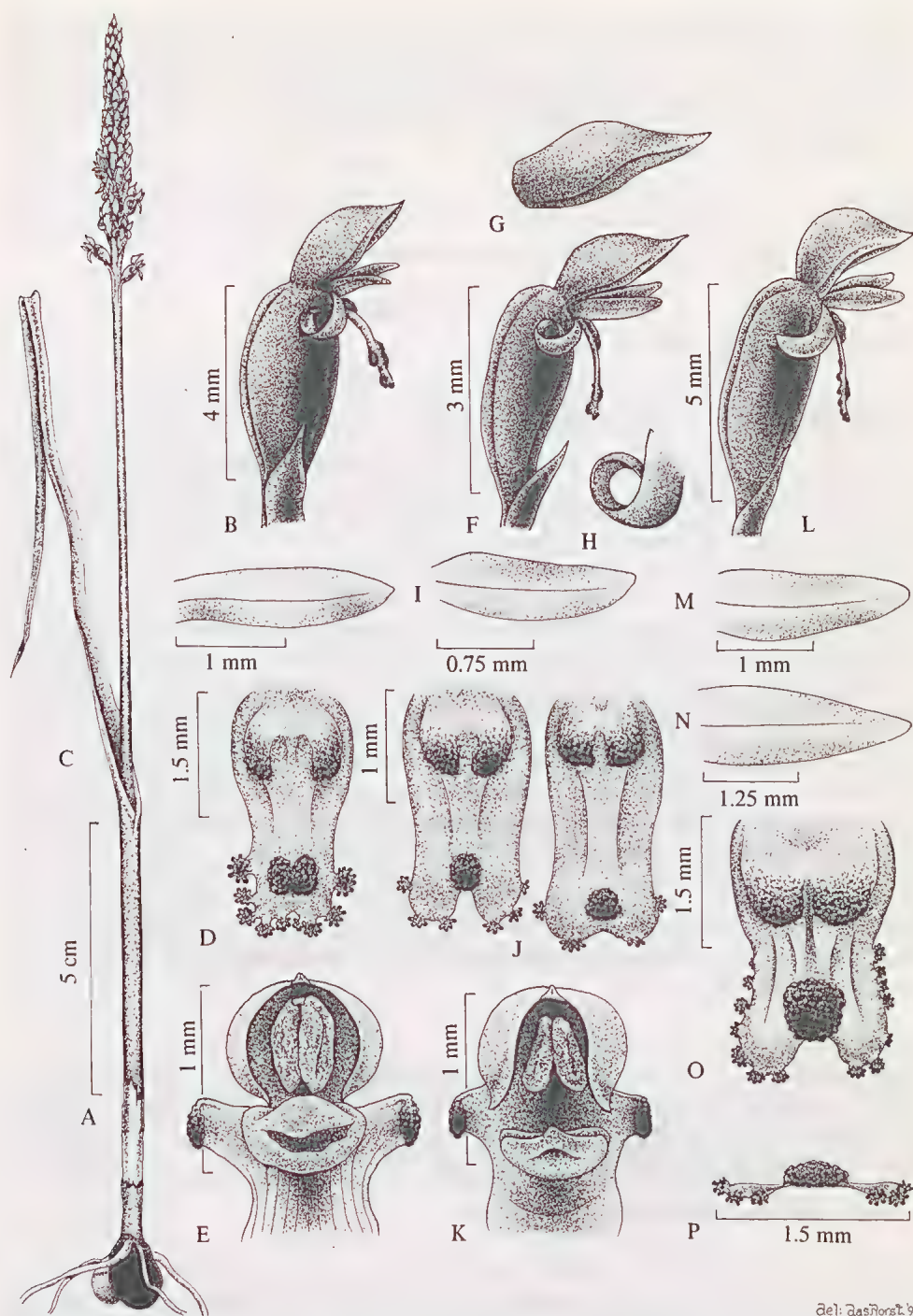
Distribution and ecology (Map 2)

Endemic to a few clay-based, coastal swamps from near Albany to Walpole, forming small colonies amongst heath and sedges but apparently only flowering after fires. *M. media* ssp. *quadrata* was noted in 1987 at several recently burnt swamps between Walpole and Denmark. In one of these it was the only *Microtis* species; elsewhere it grew near *M. pulchella*, *M. globula* and *M. media* ssp. *media*. The number of clay-based swamps on the south coast would appear to be limited, the majority of them having been converted to pasture. For this reason ssp. *quadrata* must be considered the most vulnerable of the named taxa of *Microtis*. At the type location some dozen colonies were noted; these contained between 10 and 150 plants closely packed together on low mounds set in seeping water. It is likely that these mounds never dry out. *M. media* ssp. *quadrata* is conserved only in the Walpole-Nornalup National Park.

Conservation status: 2VC (see above).

Notes

Ssp. *quadrata* differs from ssp. *media* principally in the shorter more deeply concave, ribbed



Del: Gashford 90

Fig. 2A-E. *Microtis media* R. Br. ssp. *media*, based on Bates 13272; A, habit; B, flower in side view; C, petal; D, labellum; E, column; F-K. ssp. *densiflora* (Benth.) R. Bates, based on Bates 2898; F, flower in side view; G, dorsal sepal; H, lateral sepal; I, petal; J, labellum variation; K, column; L-P. ssp. *quadrata* R. Bates, based on Bates 13277; L, flower in side view; M, petal; N, lateral sepal; O, labellum in front view; P, labellum viewed from the apex.

dorsal sepal, the deeper green, more fleshy flowers, the more regular labellum with evenly spaced marginal excrescences, the shorter, blunter petals and the shorter less distinctly revolute lateral sepals. At the type location ssp. *quadrata* grew within 100 m of several other *Microtis* species, i.e. *M. rara*, *M. familiaris*, *M. alba*, *M. atrata* and a peculiar ornate species with constricted labellum and large excrescences on the apex. This last plant was not encountered elsewhere and is not named here.

Etymology

The epithet '*quadrata*' refers to the short quadrate labellum.

Specimen examined

The type collection is the only one seen.

c. ssp. *densiflora* (Benth.) R. Bates, stat. et comb. nov.

Basionym: *M. parviflora* R. Br. var. *densiflora* Benth., Fl. Austral. 6: 348 (1873).

Type: 'Western Australia', 1849, *J. Drummond 117* (holo., K!; iso.: MEL!).

M. densiflora (Benth.) M. Clements, Austral. Orch. Res. 1: 94 (1990).

M. parviflora non R. Br., sens. auctt.: Pelloe, W. Austral. Orchids 19 (1930).

Plant 10-50 cm tall, slender to robust, wholly yellow-green. *Dorsal sepal* ovate-lanceolate, 2.5-3.5 x 1-2 mm, very shallowly galeate, not ribbed, apiculate; lateral sepals revolute, to 2.5 mm long. *Petals* acute, to 1.5 mm long. *Labellum* oblong, very variable in length, 2-4 x 1-2 mm, thin textured, translucent, gradually deflexed towards ovary, margins largely entire except for irregular granular excrescences which are unevenly spaced but more frequent towards the irregular apex, each labellum even on same spike usually slightly different, basal calli comma-shaped and facing each other so as to form brackets enclosing the nectary, apical callus absent or insignificant, often appearing as a slightly raised granular area about 0.2 x 0.2 mm, like a pimple on a pumpkin. *Column* c. 1 mm high, caudicle < 0.2 mm long. Fig. 2F-K.

Flowering

October to January. It is not unusual to find both buds and dehiscent seed capsules on the same spike. Not usually perfumed.

Distribution and ecology (Map 2).

Endemic to the south-western tip of Western Australia from south of Perth to near Albany in heath, woodland and clearings in forest, especially on roadsides, often with *M. alba*, but unlike that species, flowering freely without fire or disturbance. Also occurs in lightly grazed pasture like *M. parviflora* and *M. unifolia* in the eastern States.

Conservation status: common and well conserved.

Notes

The thin textured, remarkably irregular labellum with much reduced apical callus and marginal excrescences make this an easily recognised taxon. The subspecies status is indicated by the presence of intermediate forms between this taxon and ssp. *media* while the need to erect the subspecies is indicated by the very great differences between the extreme forms of ssp. *densiflora* and ssp. *quadrata*. *M. media* ssp. *quadrata* is particularly susceptible to floral

irregularities, i.e. teratological freaks such as double flowers, fasciated flower spikes and flowers without anthers are often encountered. The flowers are probably agamosperous.

The type form found behind coastal sandhills often has very dense spikes of up to 150 flowers but inland or forest plants may have fewer flowers, usually less than 50 per spike.

Selected specimens (from 12 examined)

WESTERN AUSTRALIA: Margaret River, 23.xii.1982, *R. Bates* 2898 (AD); Forest Drive near Pemberton, 9.xii.1987, *R. Bates s.n.* (AD, PERTH); Diamond Tree School near Jarnadup, 5.xii.1920, *I. Knox-Peden* sub *Rogers* 2245 (AD).

Additional notes on other species

M. alba

Several distinct forms of this species have been noted. The typical form is a tall slender plant with narrow flower spikes and clear white flowers. These have a very strong apricot odour and the labellum is deeply bilobed. It flowers in burnt forest or swampy heath. A second form with short stems and dense flower spikes occurs on coastal sandhills and heathlands. It flowers earlier than the type form, but the flowers are as for the type. It is interpreted here as an early-flowering ecotype from exposed situations; other orchids notably *Prasophyllum hians* and *Microtis media* react similarly under these conditions. A third form is more perplexing. It has a greenish tint to the flowers, which are smaller and have a less deeply bilobed labellum. It also produces an apricot odour, but this is much less obvious than in the type form. It occurs in the same habitats as the type form and blooms at the same time. It was previously interpreted as a hybrid (A. Brown 1980, Bates 1984 as *M. alba* × *M. unifolia*), but it occurs as large constant populations. Further work is required to establish if it is perhaps a stabilised hybrid between *M. alba* and *M. media*. This greenish form has in the past been occasionally interpreted as *M. media*.

M. atrata and *M. orbicularis*

A curious feature of both of these apomictic species (Bates 1984) was observed in 1987. Plants which were growing in a waterhole south of Northcliffe had been completely inundated after heavy spring rains shortly before flowering. The flowers of both species developed naturally under water except that they remained tightly closed, seed capsules swelled and seed was set as for plants flowering normally around the edge of the waterhole. From observations of all species of *Microtis* in Western Australia it seems likely that some degree of apomixy may occur in each.

M. globula

This species, first described in 1984 from limited collections, has since been found in good numbers between Albany and Northcliffe (A. Brown pers. comm. 1986, Phillips 1988). The author found it in five out of 40 burnt peat bogs examined on a visit to the Walpole area in December 1987. It appears well conserved, but must still be considered rare, and safe only if no further clearing occurs in the area. It is indeed a very constant and well marked species.

M. parviflora

This species was not recorded for Western Australia either by A.S. George (1971) or Bates (1984), but on a visit to the area in 1984 the author found *M. parviflora* to be widespread about inland rock outcrops, usually in semi-arid country (Bates 1985). At the same time A. Brown & S. Hopper (pers. comm.) also determined *M. parviflora* as occurring there, and several earlier collections were discovered at PERTH. Curiously this habitat is most unlike the type location of *M. parviflora* on the eastern coast of Australia and further research is required

to verify that they are indeed the same taxon. *M. parviflora* sens. lat. has recently been found in semi-arid parts of New South Wales and South Australia (see below).

Selected specimens (from 10 seen)

WESTERN AUSTRALIA: 30 km west Mt Magnet on rock outcrops, 2.ix.1984, *R. Bates* 4175 (AD, PERTH); Newmann Rock via Balladonia, 26.x.1984, *R. Bates* 4675 (AD); West of Red Kangaroo Hill via Coolgardie, xi. 1891, *R. Helms s.n.* (AD).

NEW SOUTH WALES: Nymagee, at base of granite hill, 10.x.1987, *R. Bates* 11642 (AD); Cocoparra Ranges, on dry rocky ridges, 15.xi.1989, *R. Bates* 21437 (AD).

SOUTH AUSTRALIA: Hiltaba, Gawler Ranges, in moss pockets near rock pool, 26.ix.1989, *R. Bates* 20929 (AD, NSW).

M. pulchella

This species is often treated as endangered, but the author found it in 23 of 40 burnt peat bogs in the Walpole area in 1987; indeed it was the most abundant orchid seen in the area during three days of extensive field work. In view of this, *M. pulchella* should be removed from the endangered species list.

M. rara

Bates (1984) placed *M. brownii* H.G. Reichb. in the synonymy of *M. rara* R. Brown but Clements (1990) reinstated *M. brownii* as a species endemic to Western Australia stating that its affinities "appear to be with *M. alba* rather than the eastern Australian species *M. rara*" and that it differed from *M. rara* in "the porrect rather than erect dorsal sepal" and "widely spreading apical lobes of the labellum." However, neither of these characters are found in the type of *M. brownii*. Western Australian plants differ from most eastern States' material in having more shallowly galeate dorsal sepals and sometimes more distinctly thickened labellum margins but these features occasionally occur in eastern populations of *M. rara*. Further research is required before *M. brownii* can be confidently treated as a separate taxon.

M. unifolia sens. lat.

Most collections previously determined as *M. unifolia* from Western Australia belong to *M. media*. There are, however, collections which cannot be satisfactorily placed in *M. media* as they do not have the granular-papillose labellum margins of that species, e.g. Pinjarra Swamps, *R. Bates* 4525 (AD). Nor can these collections be placed with *M. unifolia* sens. strict. as they have a shallowly galeate, acuminate dorsal sepal and large thicker labellum compared to the deeply concave dorsal sepals and small thin labellum of *M. unifolia*. It would appear that these represent undescribed taxa but there is a perplexing array of locally constant forms in both Western Australia and in the eastern States which require more detailed studies.

Acknowledgements

I would like to thank Dr J.P. Jessop and the staff at the State Herbarium, Adelaide, particularly Dr H. Toelken, who provided the Latin diagnoses, but also my mother, Mrs M. Bates, who typed the first draft. Andrew Brown and other members of the Western Australian Native Orchid Study and Conservation Group provided valuable support.

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PRASOPHYLLUM LITORALE A NEW SPECIES OF ORCHIDACEAE FROM SOUTH-WEST VICTORIA AND ADJACENT SOUTH AUSTRALIA

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Abstract

Prasophyllum litorale R. Bates, a species previously included under *P. frenchii* F. Muell. is described as new and a key is provided to distinguish it from related species.

Introduction

The presence of an apparently undescribed species of *Prasophyllum* near Portland in south-western Victoria was first brought to my attention by the late Collin and his wife Dorothy Woolcock of Portland in 1984. Photographs and material were subsequently sent by S. Forbes and D. Beardsell in 1985. Beaglehole (1980) had referred these plants to *P. rogersii* Rupp, a sub-alpine species from the east coast, but Beardsell and Forbes were doubtful of this determination. Examination of extensive collections including the types of *P. rogersii*, *P. hartii* R. Rogers and *P. frenchii* F. Muell. indicated that the Portland plants were indeed distinct. Together with C. & D. Woolcock and A.C. Beaglehole the author visited populations along the coast from Portland to Nelson in December 1985 and in December 1987, field work was carried out in the Barrington Tops, the type location of *P. rogersii*, as well as the New England area of New South Wales and sub-alpine areas of Victoria. The work showed that *P. rogersii* sens. strict. is endemic to the sub-alpine areas of New South Wales and Victoria, and that it does not extend to either south-western Victoria or Tasmania (Nicholls 1969, Jones 1988). The study revealed the presence of two undescribed taxa (previously referred to *P. rogersii*) on the New England Table Lands, showed that the Tasmanian material belongs to a separate undescribed taxon and indicates that *P. rogersii* is closely related to *P. frenchii*, but it needs more detailed research.

In January 1987 plants of the Portland taxon were found in the coastal sandhills at Picaninny Ponds, South Australia less than 500 metres from a large population of *P. frenchii* growing in boggy habitat. There were no intermediates and the plants of *P. frenchii* were considerably more advanced in flowering. In view of the different flowering times, habitat preference and constant morphological differences it became clear that two different, albeit very similar, species were involved. The coastal sandhill species is therefore described here.

***Prasophyllum litorale* R. Bates, sp. nov.**

P. frenchii F. Muell. affine sed spicis brevioribus densioribus, labello magiore base minus gibbosa apiceque crenulato et crispato et ovaria breviora paene globosa differt.

Holotype: Scenic Road, south of Portland, 7.xii.1983, C. & D. Woolcock 949 (MEL).

Plant robust, 20-40 cm tall; tuber sub-globose, about 1 cm diam., formed adjacent to plant base, stem below soil level with two cylindrical hyaline sheaths, the lower vestigial, the upper 1-3 cm long. *Leaf* hollow-terete, usually senescent at flowering, red basally, green above, 5-9 mm diam., apex lax. *Scape* largely enclosed within leaf, green, 4-8 mm diam. *Flowers* variously coloured in tones of green, red, purple, brown and cream, erect, numerous, in a short,

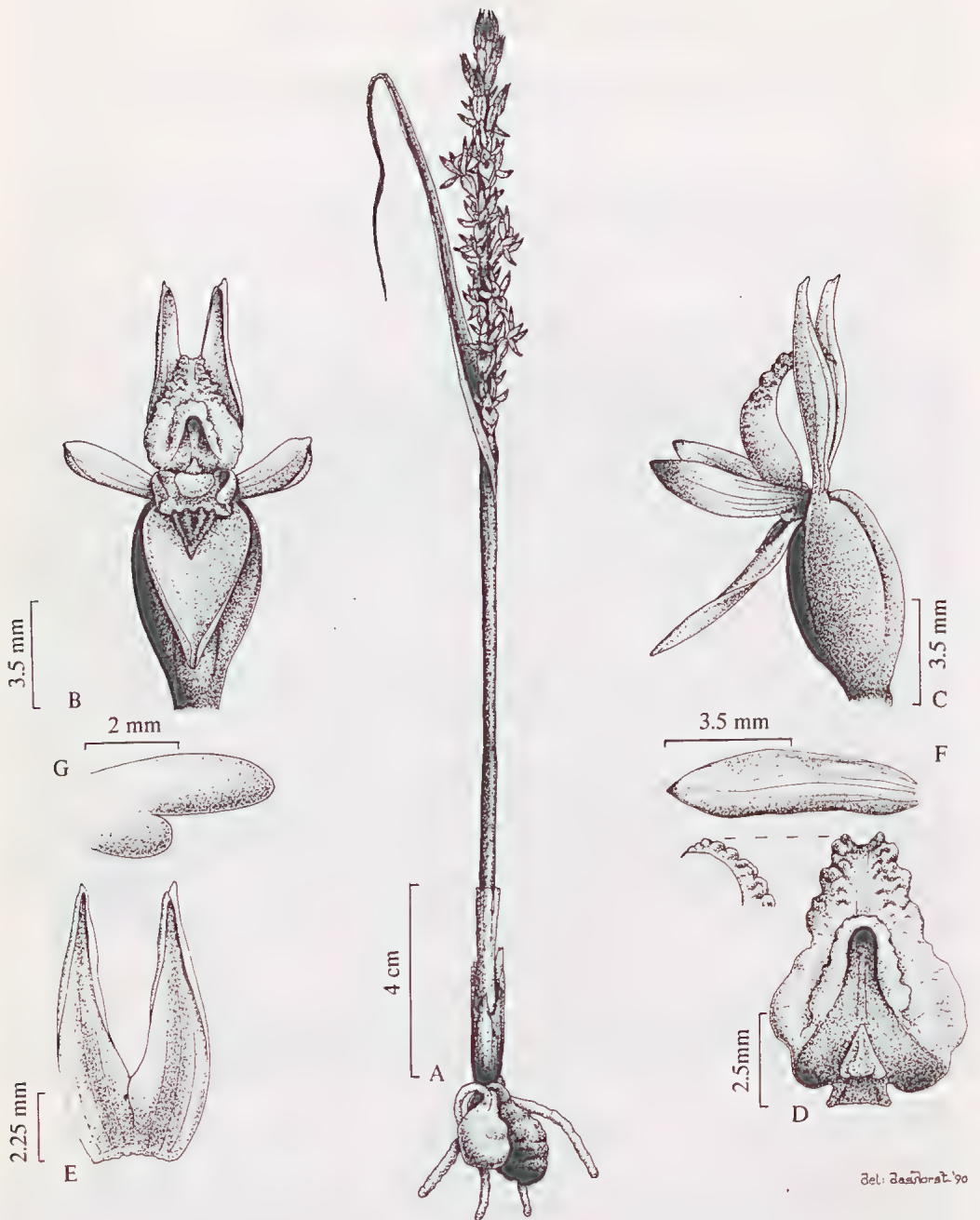


Fig. 1 *Prasophyllum litorale* R. Bates based on R. Bates 4845. A, whole plant; B, flower in front view; C, flower in side view; D, labellum; E, lateral sepal; F, petal; G, column appendages.

moderately to very dense sub-cylindrical spike. *Ovary* subsessile, globose to ovoid, 5 x 3 mm, wholly green or with purple-brown ribs, subtending bract quadrate-ovate, obtuse or acute, 1-2 mm long, 2 mm broad. *Dorsal sepal* ovate-lanceolate, 6-8 x 3-4 mm, green with broad red-brown central stripe, concave, horizontally placed or sloping up towards the shortly acute apex. *Lateral sepals* quite free, lanceolate, 6-8 x 2 mm, green, brown or red, thick-textured, margins incurved or inrolled, apex broad with a small tooth-like projection close to tip. *Petals* oblong, 5 x 1.5 mm, obtuse, falcate, pink, red-brown or brown with paler edges. *Labellum* short, 5 x 2-3 mm, recurved at 90° past the middle, on a short claw, base gibbous with a pyramidal nectary gland, lamina pink or lilac to creamy-white, crinkled and crenulate, expanded, apex obtuse and thrust through sinus of lateral sepals; callus plate a short, thick channelled, verrucose tongue glistening with nectar, yellow-green, occupying a quarter of the lamina. *Column*: appendages oblong, 2-3 x 1 mm, obtuse to truncate, pink or green, with short rounded, thick basal lobe; anther 2 mm high, red-brown, ovate, septate, the dividing membranes 3-partite, tip crassulate; stigmatic plate short, stigma deeply set; rostellum very short; caudicle 0.2 mm long.

The distinguishing features include the stout habit, short scape, the very short often globose ovary, the reduced floral bracts, the succulent short broad floral segments, the globular flowers with their variable colours, free and spreading sepals, crisped and crenulate labellum and broad-oblong column appendages. The habitat of *P. litorale* is also quite distinct.

Similar species include *P. frenchii* which has longer ovaries, a more gibbous labellum base and a much smaller labellum lamina which is not crisped and crenulate; *P. diversiflorum* differs in its narrower flowers, laterally compressed labellum and more intricate callus plate; *P. rogersii* differs in its less voluminous labellum, shorter thicker labellum callus, consistently smaller, duller flowers with longer bidentate lateral sepals. All these species must be closely related and were it not for their very different habitat preferences they could easily be regarded as one highly variable species. *P. litorale* is sometimes almost sympatric with *P. frenchii*, but whereas the latter occurs in boggy sites in dark black loams, *P. litorale* favours dry sand over red loam.

Flowering

Late November to early January but not requiring disturbance to facilitate flowering. The blooms emit a sweet honey fragrance, and individual flowers last only 3-7 days.

Distribution and ecology

Occurs in south-western Victoria from Portland west to Port Macdonnell in South Australia. It is confined to the coastal sandhills often in sight of the sea, in dry sand overlying moisture retentive loams. Sympatric species include *Acacia longifolia* var. *sophorae*, *Olearia axillaris* (shrubs), *Poa poiformis*, *Isolepis nodosa*, *Leptocarpus brownii* and *Agrostis billardieri* (grasses and sedges) with *Swainsona lessertiifolia*, *Convolvulus erubescens* and *Dianella revoluta*. The introduced grass *Lagurus ovatus* was noted at all sites.

Conservation status: 2VCi (after Briggs & Leigh 1989).

Etymology

From Latin *litoralis*, pertaining to the sea-shore, since the species appears to be restricted to the coastal sandhills.

Specimens seen

VICTORIA: Scenic Drive, S Portland, 17.xii.1984, R. Bates 4845 (AD); Discovery Bay Coastal Park, SE Eel Creek crossing, 30.xi.1981, A.C. Beaglehole 13 70046 and C. & D. Woolcock (MEL); Nelson Bay, 25.xi.1983, A.C. Beaglehole 75437 (MEL); Glenelg River mouth, track E, near Ocean Beach, 26.xii.1983, S.J. Forbes & A.C.

Beaglehole 76020 (MEL); Bridgewater lakes, 7.xii.1983, C. & D. Woolcock W948 (Priv. Herb.)

SOUTH AUSTRALIA: Sandhills N Piccaninny Ponds, 2.i.1987, R. Bates 8724 (AD).

Key to species similar to *P. litorale*

1. Column appendages hatchet-shaped; labellum laterally compressed *P. diversiflorum*
1. Column appendages not hatchet-shaped; labellum not laterally compressed 2
2. Labellum crisped, very crenulate, voluminous; flower spike short and dense; plants of coastal sandhills *P. litorale*
2. Labellum not crisped, not or only slightly crenulate, not voluminous; flower spike if short not dense, or if dense not short; plants not in coastal sandhills 3
3. Apical or recurved portion of labellum at least half the size of the base; plants sub-alpine *P. rogersii*
3. Apical or recurved portion of the labellum less than half the size of the base; lowland plants *P. frenchii*

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A NOTE ON *BRACHYSCOME** *RARA* G.L. DAVIS (ASTERACEAE)

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Abstract

Brachyscome coongiensis Munir is a synonym of *B. rara* G.L. Davis. Notes on the type collections and recent collections are provided.

Davis (1955) described *Brachyscome rara* from specimens gathered by W. MacGillivray from the Wilson River, south-western Queensland, in September 1922. Briggs & Leigh (1988) recorded this as a '1K' species, i.e. one only known from the type collection. I subsequently searched for this species in August 1989 — but to no avail. Since then I have examined type material of both this species and the recently described *B. coongiensis* Munir (1987). It is apparent that the latter is conspecific with *B. rara*.

Thus, *Brachyscome rara* is now known to have been gathered from the Wilson River region and in adjacent north-east South Australia, the type of *B. coongiensis* and other South Australian specimens having been gathered in the Coongie Lakes region (see below). Collectors' notes indicate that the species grows in the cracking clay of floodplains, e.g. 'Low ephemeral chenopod shrub/forbland on heavy clay' (Gillen/Reid 852), 'Sporobolus mitchelli mixed grassland on cracking clay floodout' (Reid 712) and 'Floodplain in open *Muehlenbeckia cunninghamii* association' (Reid 229). All definite localities for this species, including the Wilson River, are within the Cooper River drainage basin, suggesting that *B. rara* may well be found in other localities within the basin.

***Brachyscome rara* G.L. Davis, Proc. Linn. Soc. New South Wales 79: 204, figs 5-8 (1955).**

Holotype: MacGillivray s.n., Floodwaters of Wilson River, -ix.1922 (AD 98930057, formerly ADW 8118 & ex herb. Albert Morris). *Paratype*: (AD 98674106, formerly ADW 8118 & ex herb. Albert Morris). *Isoparatypes and probable isoparatypes*: AD 97626128 p.p. (ex herb. J. M. Black, see below).

Brachyscome coongiensis Munir, J. Adelaide Bot. Gard., 11: 53, fig. 1 (1988).

Holotype: Reid 1183, Coongie, Lake Eyre Basin, Clay flat, 1.ix.1987 (AD 98742084). *Isotypes*: AD 98749193, BRI 418002, MEL n.v., NSW n.v.

[*Brachyscome basaltica* auct. non F. Muell., J. M. Black, Fl. S. Aust., 1st ed., 583, fig. 246F (1929), as to AD 97626128 (ex herb. Black) but excluding var. *gracilis* Benth.]

Davis (l.c.) recorded that the holotype and paratypes of *B. rara* were housed in the herbarium of the Waite Institute, Glen Osmond (ADW). This herbarium has since been transferred to the State Herbarium of South Australia (AD) (Symon 1985) and specimens have received an AD number in addition to their ADW number. Unlike many taxonomists, including myself, when describing new species Davis never nominated a sheet of small specimens as the holotype, preferring to nominate a single specimen as the holotype. Any remaining individuals were paratypes. In such cases, unless it is clear that individual pieces have been taken from the holotype specimen, isotype specimens do not exist. In the case of

*The correct spelling of the name is at present *sub judice* with the Committee for Spermatophyta.

B. rara the holotype specimen, a small, seemingly entire plant, is the only one on AD 98930057. The three small branches on AD 98674106 are from one or more different individuals and perhaps have been removed from the specimens now in J. M. Black's herbarium.

On the top left-hand side of Black's composite sheet (AD 97626128), not examined by Davis, there are several branches referable to *B. basaltica* var. *gracilis*. The remainder of the sheet contains specimens of *B. rara* which were referred by Black to *B. basaltica* and clearly formed the basis for his description, including the figure of the fruit, of that species in the *Flora of South Australia* (Black 1929). Indeed Black refers to these specimens as 'typica' on the sheet. Two specimens on the lower, left-hand side are isoparatypes of the name *B. rara*, having been gathered by Dr McGillivray [sic] from the Wilson River in Sept. 1922. A further specimen on the right-hand side is also likely to be an isoparatype, although, besides citing the same collector and date Black has recorded 'Floodwaters of Wilson Riv. or C...R... [illegible] BHill & Cordillo Down', suggesting that it may have been gathered elsewhere. A further specimen of *B. rara* on the sheet was gathered by R. Cockburn, in June 1916.

William D.K. MacGillivray, the collector of the type of *B. rara*, was a medical practitioner and settled in Broken Hill in 1901. He was a friend of Albert Morris and both made many collections of arid zone plants (Anon.). In September 1922 MacGillivray not only gathered type material of *B. rara*, but also collected type material of *Eremophila macgillivrayi* J.M. Black (Black 1926), not from the Wilson River, but Cordillo Downs. This is consistent with the confusing annotation on Black's sheet.

Specimens examined

SOUTH AUSTRALIA: *Alexander 2420*, Coongie Lakes area, channel leading into Lake Apachirie, 18.x.1983 (AD); *Cockburn*, between Goyders' Lagoon & Qld border, -.vi.1916 (AD 97626128, ex herb. Black); *Conrick 1890*, Cooper Creek delta into Coongie Lake, 14.x.1986 (AD); *Conrick 2255*, Innamincka Stn, 4.xi.1987 (AD); *Gillen/Reid 852*, Lake Apachirie, 18.v.1987 (AD); *O'Malley 229*, Coongie Lakes, 25.i.1987 (AD); *Reid 712*, Coongie, floodout of Lake Tootoowarania, 20.iv.1987 (AD); *Reid 1142*, 2 km S Coongie, 15.ix.1987 (AD, DNA); *Reid 1147*, Embarka Swamp, 11.ix.1987 (AD); *Reid 1178*, Tirrawirra Swamp, 17.vii.1987 (AD); *Reid 1183*, Coongie, 1.ix.1987 (AD, holotype of *B. coongiensis*; AD, BRI, isotypes). *Reid 1689*, 15 km SSE Coongie, 16.viii.1988 (AD).

QUEENSLAND: *MacGillivray s.n.*, Floodwaters of Wilson River, -.ix.1922 (AD 98930057, holotype of *B. rara*; AD 98674106 & AD 97626128, paratypes).

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TWO NEW MALLEE SPECIES FROM SOUTH AUSTRALIA IN *EUCALYPTUS* L'HERIT. SERIES *RUFISPERMAE* MAIDEN

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Abstract

Two new South Australian species of *Eucalyptus*, series *Rufispermae* Maiden, are described. *E. percostata* Brooker & P. Lang is a mallee known from a few localities in the Southern Flinders Ranges. It has affinities with *E. dumosa* and *E. pileata* but differs from the former mainly by the strongly ribbed operculum wider than the hypanthium, and from the latter by dull and often glaucous leaves. *E. crenata* P. Lang & Brooker is a mallee or small tree from central Eyre Peninsula strongly resembling *E. cyanophylla* in gross morphology, but readily distinguished by its prominently glaucous branchlets, grey-green subglaucous leaves, and summer flowering time. A key to South Australian species of series *Rufispermae* is provided.

Introduction

Series *Rufispermae* was erected by Maiden (1925) and based on a single species, the Western Australian endemic *Eucalyptus woodwardii* Maiden. The series, now recognized to be one of the largest in the genus, comprises 18 published species with a further 6 unpublished taxa proposed by Brooker & Kleinig (1990). It was previously incorporated under the more broadly defined series *Dumosae* of Blakely (1934) which was reviewed by Brooker (1971) and subdivided into several groups based mainly on seed characters. These groups now stand as separate series within section *Dumaria* (Pryor and Johnson, 1971).

The two new species clearly belong in series *Rufispermae* by the following combination of characters: branchlets with glandular pith, two opercula, reniform cotyledons, inflexed stamens, versatile oblong-cuboid anthers, and red lustrous flattish seed with a shallow reticulum.

Both species were identified as potential new taxa in a morphometric study of the series by Lang (1983) which supports the relationships and affinities outlined in this paper.

Eucalyptus percostata Brooker & P. Lang, sp. nov.

E. percostata Brooker & Lang *ined.*, in Brooker & Kleinig (1990, p.334).

Ab *E. dumosa* A. Cunn. ex Oxley pedicellis latioribus saepe contractis, operculo valde costatis latiore quam hypanthio, et demum florenti praecipue differt. Fructus leviter costati saepe sunt.

Type: 25.v.1986, M.I.H. Brooker 9326 and D. Kleinig, track E of Devil's Peak, south of Quorn, South Australia, 32°27'S 138°01'E (holo: AD, iso: CANB,NSW).

Mallee to 4 m tall with smooth whitish and grey over coppery bark. *Branchlets* non-glaucous, quadrangular at first but becoming terete, with glandular pith. *Seedling* leaves remaining decussate for 3-4 pairs, petiolate, elliptical to ovate, to 65 x 40 mm. *Juvenile leaves* alternating, petiolate, broadly lanceolate to ovate, to 100 x 60 mm, dull, light green to bluish-

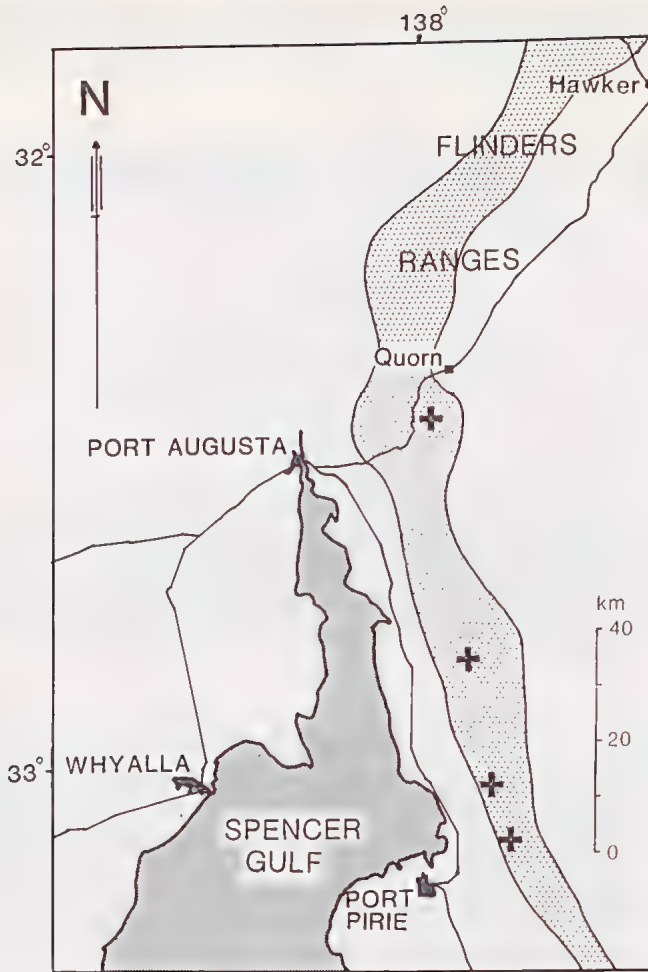


Fig. 1 Distribution of *E. percostata* (+).

green. *Adult leaves* alternating, petiolate, lanceolate, 75-120 mm long, 14-22 mm wide, 0.35-0.45 mm thick, dull with cuticular relief 0.025-0.045 mm high, non-glaucous to densely glaucous¹, concolorous, green, blue-green or bluish-grey, secondary veins 25-35° to midrib, reticulation dense, with numerous intersectional oil glands. *Inflorescences* non-glaucous, axillary, unbranched, 7-flowered; fruiting peduncles flattened, 16-20 mm long and 2-3 mm wide at mid-length. *Mature buds* shortly pedicellate; hypanthium cupular to obconical, often angular or lightly ribbed; operculum hemispherical to conical, not contracted to strongly rostrate, conspicuously wider than hypanthium at join, strongly and sharply ribbed, ribs to 0.8-1.3 mm high. *Stamens* strongly inflexed, all fertile; filaments creamy-white; anthers versatile, oblong-cuboid, opening by longitudinal slits. *Mature fruit* shortly pedicellate, cupular to obconical, (5.5-) 6.5-7.5 (-8.5) mm long and (5.5-) 6-7 (-7.5) mm wide at summit, mid-width/summit-width ratio (0.9-) 0.95-1 (-1.05), smooth or with regular ribs to 0.1-0.6 mm high; disc 0.7-1.2 mm wide, descending 0.8-1.7 mm below rim; valves (3-) 4 (-5), to rim level; pedicels (0.3-) 1.8-2.2 mm long, (1.9-) 2.3-3.2 mm wide at mid-length. *Seed* lustrous, red-brown, flattish, with shallow reticulum. Figs 2, 4.

1. In this paper glaucous does not describe a colour but is always used in the second sense of Jackson (1928) to refer to a waxy bloom.

Etymology: The epithet is derived from the Latin *per* (very) and *costatus* (ribbed) and refers to the strong ribbing of the operculum.

Specimens examined

SOUTH AUSTRALIA: Flinders Ranges Region: 19.viii.1967, *T.R.N. Lothian 4210* (AD, CANB), near junction of Alligator and Mambray Creek National Parks [= Mt Remarkable National Park]; 19.viii.1967, *J.B. Cleland s.n.* (AD), Alligator Gorge; 1.ix.1977, *R. Sinclair "A", "B", "C", "D", "E", "F"* (all AD, CANB), c. 1 km NE Devil's Peak summit; 19.viii.1987, *Pt Augusta T.A.F.E. 62* (AD), Devil's Peak walking trail.

Northern Lofty Region: 16.ix.1977, *Woods & Forests Dept. for C.D. Boomsma "specimen no. 1"* (AD), near "The Bluff", Beetaloo Valley; 10.v.1981, *R.J.P. Davies "A" (AD), "B" (AD)*, B-B-Q trail, Telowie Gorge Conservation Park; 8.vi.1981, *A.G. Spooner 7787* (AD), just N Telowie Gorge in foothills.

Distribution and habitat

E. percostata is known from four localities in the Southern Flinders Ranges over a range of 75 km (Fig. 1). The three southern localities span an isolated zone of higher rainfall bounded by the 600 mm p.a. isohyet. The type locality at Devil's Peak is a smaller outlying pocket with slightly lower rainfall to the north.

With the general decline in rainfall northwards, *E. percostata* is replaced by the Flinders Ranges form of *E. dumosa* A. Cunn. ex Oxley which extends from at least as far south as Hawker, over 210 km NNE to Freeling Heights.

Both *E. percostata* and *E. dumosa* occur on well drained, elevated sites where heavier soils have developed. This occurs either where relatively soft parent rocks are exposed or in flatter areas amongst harder sandstones and quartzites where sediments can accumulate.

At Devil's Peak, *E. percostata* occurs on footslopes as the predominant mallee in an open scrub formation immediately above a zone of *E. odorata*. At Telowie Gorge it occurs on foothills and higher slopes of the western escarpment of the ranges.

Flowering period: May-September.

Notes and affinities

The species may be confused with the much more widespread *E. dumosa* particularly when buds are absent. *E. percostata* differs from *E. dumosa* principally in the strongly ribbed operculum wider than the hypanthium at the join, and the later flowering period. It is also characterised by broader, often tapering pedicels and a tendency for fruit ribbing (Figs 2, 3B). The Flinders Ranges form of *E. dumosa* is characterized by short pedicels sharply distinguished from the hypanthium, and smooth cupular fruits often smaller than in typical *E. dumosa* or *E. percostata* (Fig. 3C).

In bud and fruit morphology, *E. percostata* resembles typical *E. pileata* Blakely, at Desmond, south of Ravensthorpe, W.A. (Fig. 3A). However, it can be readily distinguished from *E. pileata* by its dull leaves which exhibit a similar range in colour to the Flinders Ranges forms of *E. dumosa*, varying from bright green to blue-grey.

Conservation status

E. percostata has a rather limited range and has been infrequently collected; at this stage it must be regarded as rare. The population at Devil's Peak is small but relatively secure. *E. percostata* also occurs in Mt Remarkable National Park and Telowie Gorge Conservation Park. Suitable habitat is well represented in both reserves and it is not likely to be under any threat. The status code 2RC- is suggested using the criteria of Briggs & Leigh (1989).

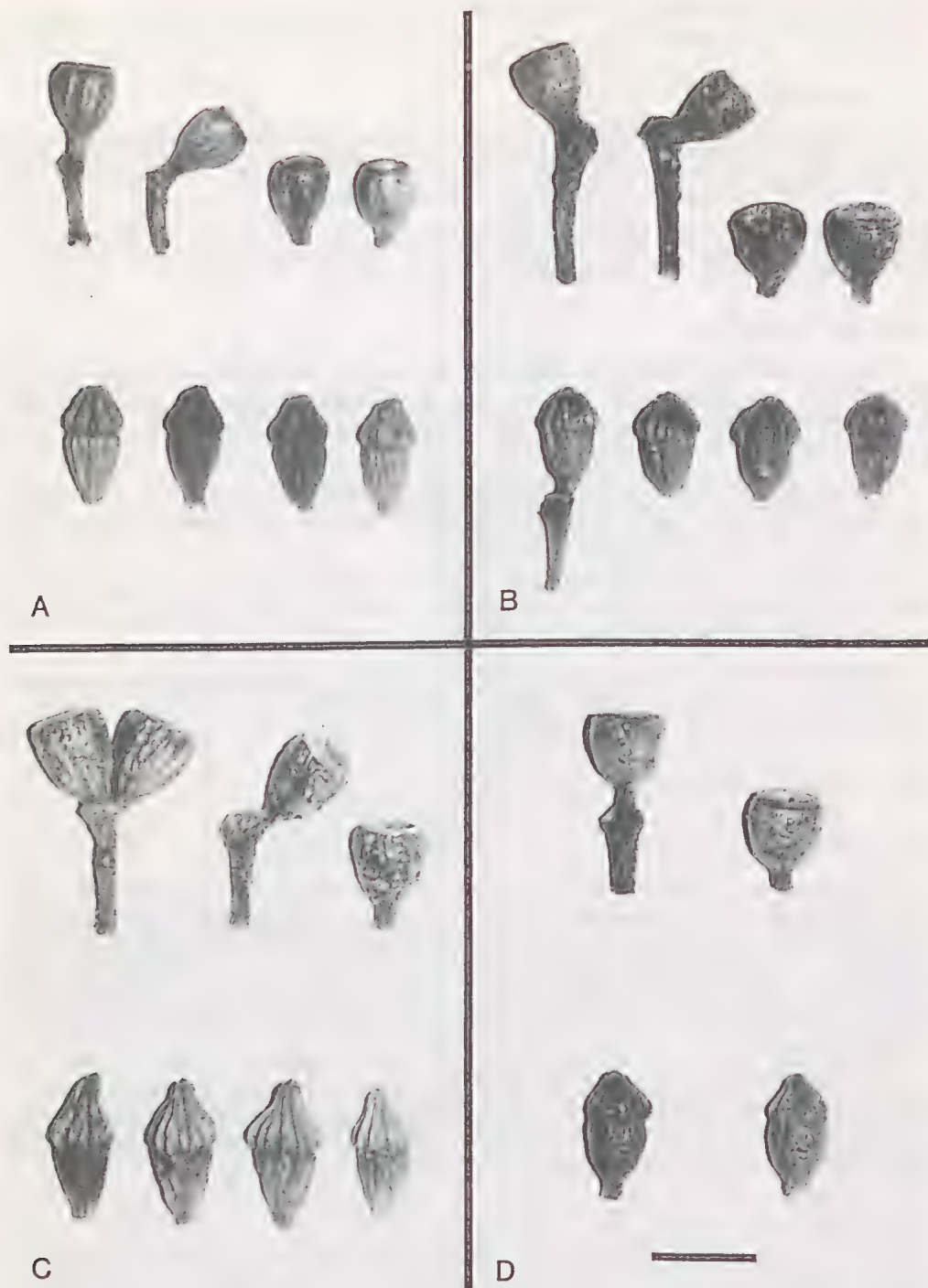


Fig. 2. *E. percostata*, fruits and buds: A, *R. Sinclair* "D", 1 km NE Devil's Peak; B, *ibid* "C"; C, *R.J.P. Davies* "B", Telowie Gorge; D, *C.D. Boomsma* 16.ix.1977, The Bluff, Beetaloo Valley. Scale = 1 cm.

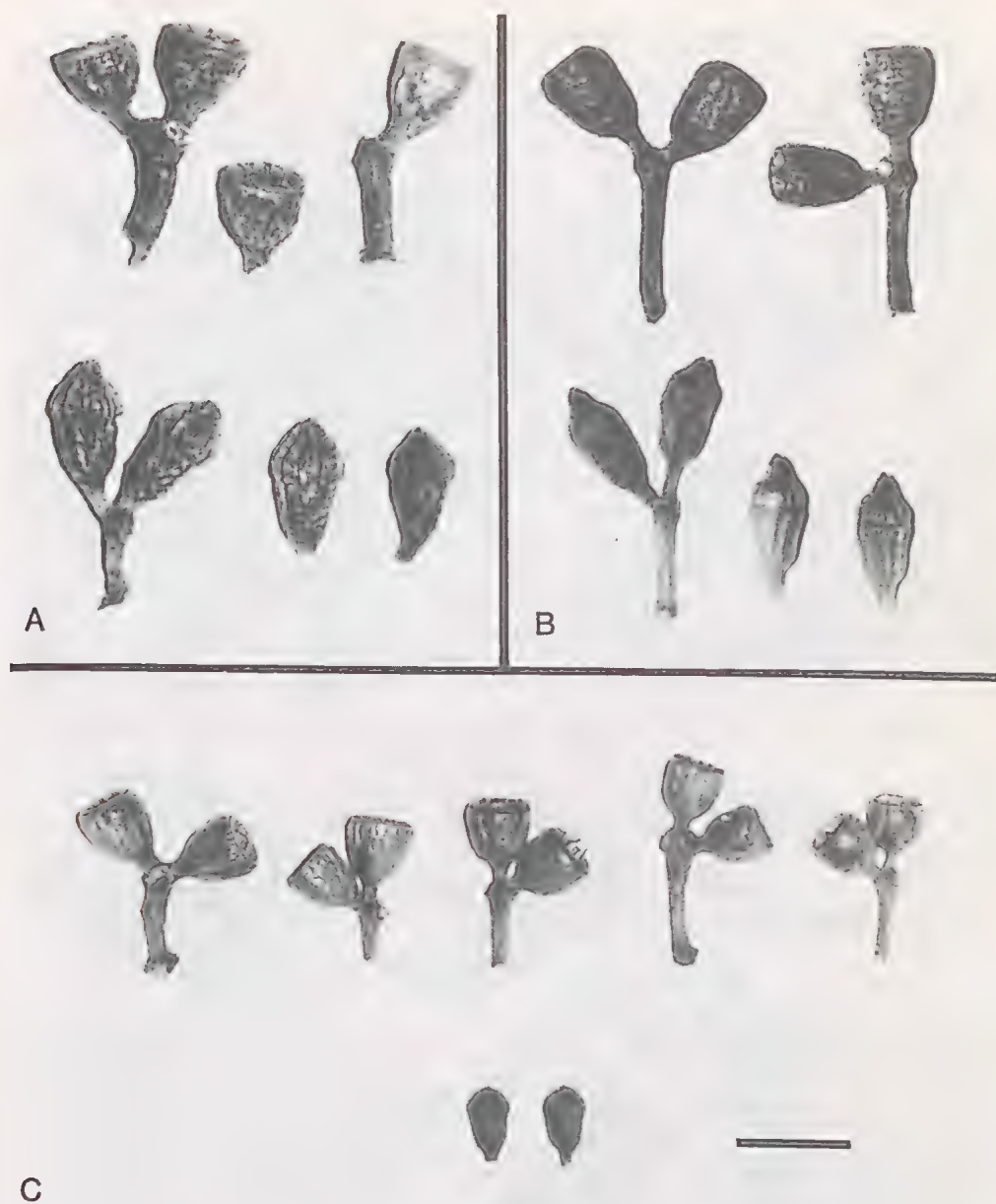


Fig. 3. Fruits and buds of taxa related to *E. percostata*: A, *E. pileata* from population at type locality, P.J. Lang 1380, 0.6 km S Desmond; B, *E. dumosa* from population near probable type locality, P.L. Milthorpe & G.M. Cunningham 6, 7.5 to 9 km W Ungarie, NSW (near the upper limit of operculum ribbing for typical *E. dumosa*); C, Flinders Ranges form of *E. dumosa*, P.J. Lang 853, 854, 856, 859, & 860, 2 km SE of Warraweena HS. Scale = 1 cm.

Fig. 4 Holotype of *E. perostata* (M.L.H. Brooker 9326 and D. Kleinig).

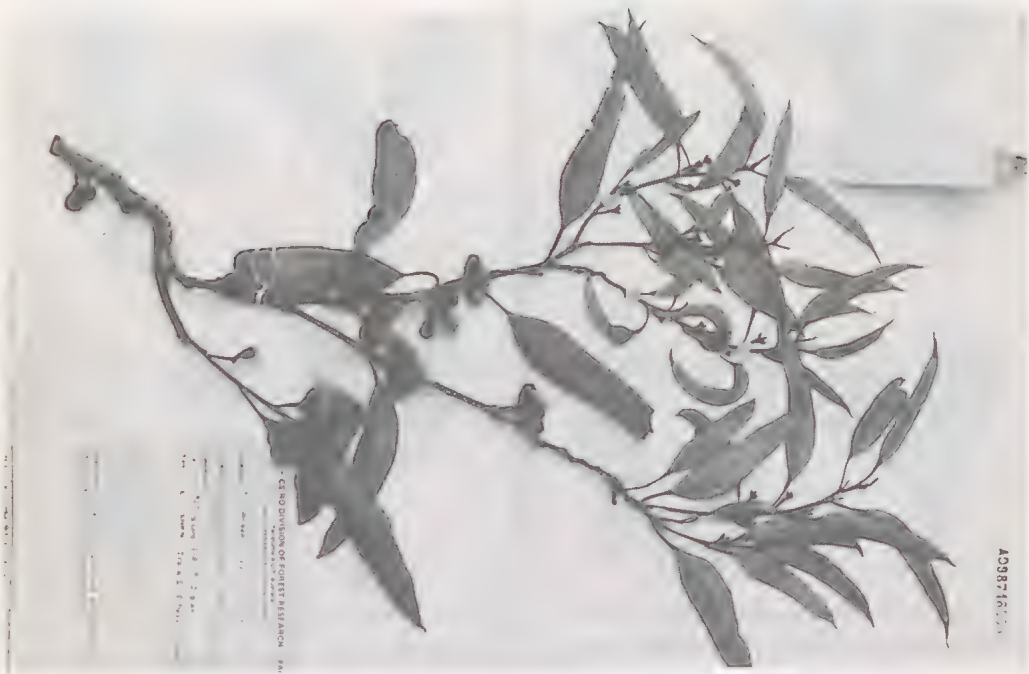


Fig. 5. Holotype of *E. cretata* (P.J. Lang 1832).



Eucalyptus cretata* P. Lang & Brooker, sp. nov.E. sp. V*, in Brooker & Kleinig (1990, p. 336).Ab *E. cyanophylla* Brooker ramulis glaucis, foliis adultis cinereo-viridis et subglaucis, et aestate florenti differt.

Type: 28.xii.1989, *P.J. Lang 1832*, E side of Carappee Hill, 1.5 km N along track from junction with road to Darke Peak, at base of hill, Eyre Peninsula, South Australia, 33°25'15"S 136°16'40"E (holo: AD, iso: AD, CANB, CBG, DNA, K, MEL, NSW, PERTH).

Straggly, thin-stemmed mallee 1.5-3 m tall, to robust mallee or small tree, to 7 (-9) m tall; bark smooth to base, whitish and grey over coppery colour. *Branchlets* strongly glaucous with a white bloom, rarely slightly glaucous, red or purplish beneath, quadrangular at first but becoming terete, with glandular pith. *Seedling leaves* remaining decussate for first 4 pairs, elliptical to ovate, grey-green. *Juvenile leaves* alternating, petiolate, orbicular to ovate, to 210 x 120 mm, bluish-grey, strongly glaucous. *Adult leaves* alternating, broadly lanceolate to lanceolate, 90-120 (-135) mm long, (18-) 22-27 mm wide, 0.45-0.55 mm thick, dull with cuticular relief (0.035-) 0.045-0.065 (-0.075) mm high, slightly to moderately glaucous, concolorous, (blue-)grey-green, drying light green, secondary veins 25-40° to midrib, reticulation moderately dense and somewhat obscure, with numerous oil glands. *Inflorescences* strongly glaucous, rarely slightly glaucous, axillary, unbranched, 7- (9-) flowered; fruiting peduncles flattened, (7-) 10-16 mm long and 2-3.5 mm wide at mid-length. *Mature buds* pedicellate, hypanthium cupular to obconical; operculum hemispherical to conical, not contracted to bluntly umbonate or weakly rostrate, conspicuously wider than hypanthium at join, strongly ribbed, ribs to (0.4-) 0.5-0.8 (-1.2) mm high. *Stamens* strongly inflexed, all fertile; filaments creamy-white; anthers versatile, oblong-cuboid, opening by longitudinal slits. *Mature fruit* pedicellate, cupular to cylindroid or obconical, 7-9.5 (-10.5) mm long by 7-10 mm wide at summit, mid-width/summit-width ratio (0.85-) 0.95-1, smooth or with regular ribs to 0.1-0.6 (-0.9) mm high; disc 0.7-1.4 (-1.7) mm wide, descending 0.8-2.3 mm below rim; valves (3-) 4-5 (-6), below rim level or protruding; pedicels 2-4 (-5) mm long, 0.8-1.4 (-1.8) mm wide

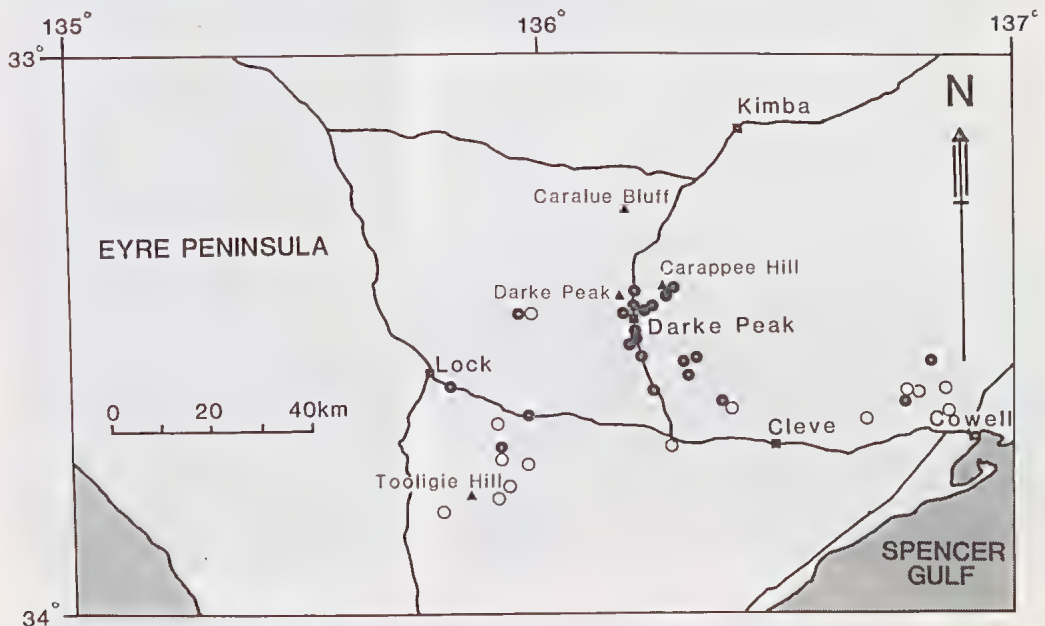


Fig. 6. Distribution of *E. cretata* (●), and *E. aff. cretata* intergrades with glaucous branchlets (○).



Fig. 7. *E. cretata*: A, small short-trunked tree 5 m tall at base of Carappee Hill, *P.J. Lang 1044*; B, slope of Carappee Hill with outcropping granite and patches of *E. cretata* low scrub; C, thin-stemmed mallee 3 m tall on slopes of Carappee Hill, *P.J. Lang 1047*.

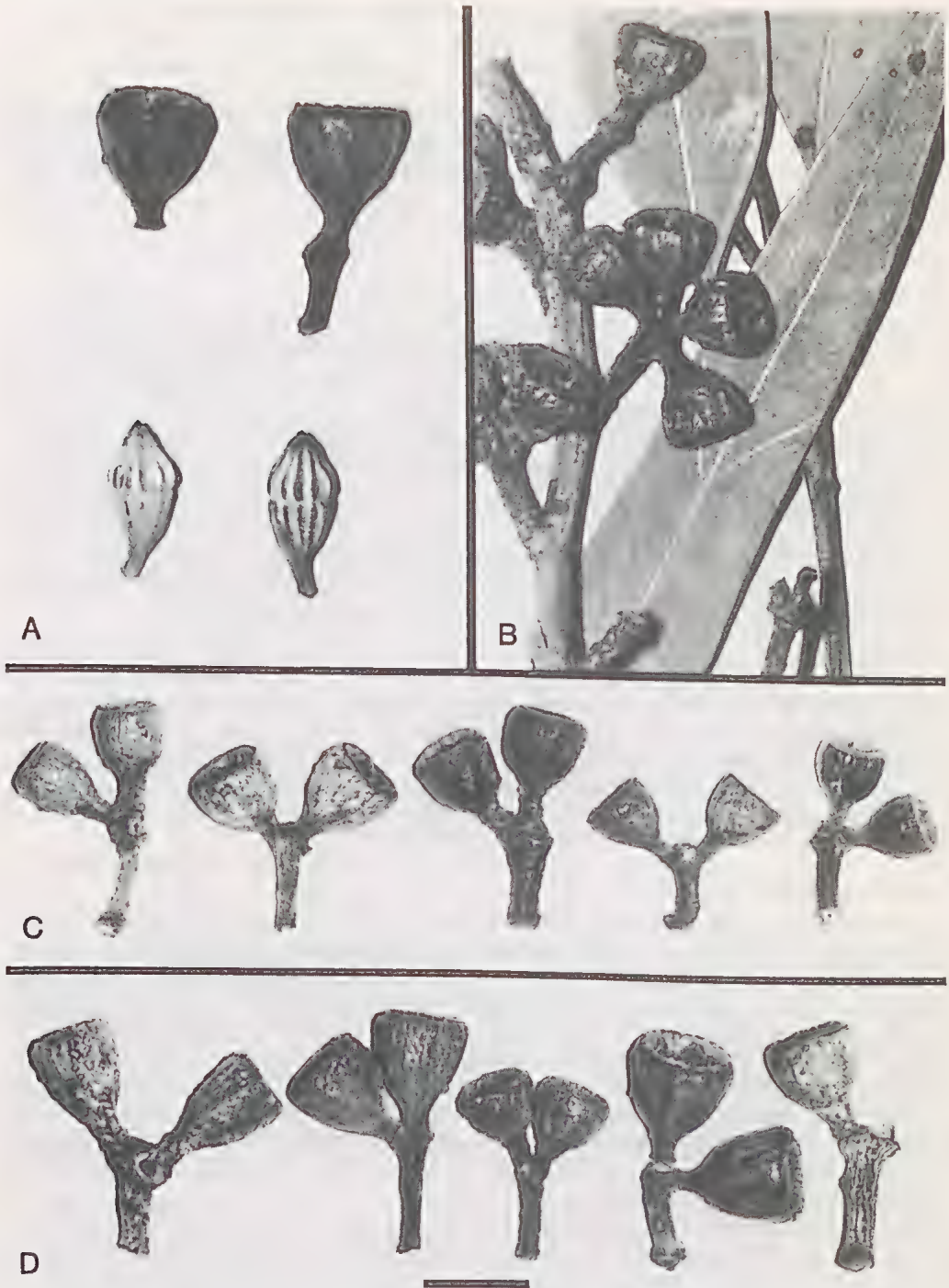


Fig. 8. *E. cretata*: A, fruits and buds, C.D. Boomsma 423, 3 km SW Carapsee Hill; B, individual with pronounced fruit ribbing, C.D. Boomsma 420B, *ibid*; C, fruits from Carapsee Hill, J.P. Conquest 24.x.1977, P.J. Lang 1045, 1044, 1047, 1048; D, fruits from plain between Carapsee Hill and Darke Peak: P.J. Lang 1050, C.D. Boomsma 420A, 420B, 423, P.J. Lang 1051. Scale = 1 cm.

at mid-length. *Seed* lustrous, red-brown, flattish, with shallow reticulum. Figs 5, 7, 8.

Etymology

The epithet from the Latin *cretatus* (marked with chalk) refers to the distinctive white bloom on the branchlets and inflorescences. The varietal epithet "*argentea*" proposed by J.M. Black could not be adopted because the combination *E. argentea* Cord. ex Blakely (1934, p.315) already exists.

Selected specimens examined

E. cretata s. str.

SOUTH AUSTRALIA: Eyre Peninsula Region: 30.viii.1935, *E.H. Ising* 3767 (AD, CANB, FI, G), Darke Peak; 30.i.1951, *E.C. Black* sub *J.M. Black* s.n. (AD), Darke Peak; 30.viii.1959, *K.D. Rohrlach* 455 (AD, BM, G, IA, K, L, P), S side Carapsee Hill; 9.x.1966, *D.N. Kraehenbuehl* 2074 (AD, CANB), E of Prominent Hill, Hambidge Conservation Park, on small clay-pan depression; 28.i.1965, *R. Pearce* s.n. (AD), Miltalie, c. 10 km NW of Cowell; 20.vi.1967, *G.C. Cornwall* 43 (AD, U), Carapsee Hill; 15.ix.1974, *D.E. Symon* 9008 (AD, NSW), S end Carapsee Hill; 17.x.1977, *P.J. Lang* 1044 (AD), 1045 (AD), Carapsee Hill, at base of hill, 0.4 km N from road to Darke Peak; 17.x.1977, *P.J. Lang* 1047 (AD), 1048 (AD), Carapsee Hill, upper slopes (SE facing) of ridge, 1.3 km N from road to Darke Peak; 17.x.1977, *P.J. Lang* 1050 (AD, CANB), 4 km NE Darke Peak P.O. on road to Carapsee Hill; 17.x.1977, *P.J. Lang* 1051 (AD, CANB), Darke Peak school; 24.x.1977, *P.J. Lang* 1142 (AD), road junction 2.2 km W Poolalie HS, c. 12 km NW Cleve; 3.ii.1979, *M.D. Crisp* 5658 (AD, CANB, CBG, NSW, PERTH), 3 km N of Darke Peak town; 28.vi.1979, *C.D. Boomsma* 420A (AD, CANB, PERTH), 420B (AD, CANB), 423 (AD, CANB), 3 km SW Carapsee Hill on road to Darke Peak; 27.xi.1985, *P.J. Lang* D8791 (AD), c. 6 km ESE of Lock on road to Rudall; 27.xii.1989, *P.J. Lang* 1829 (AD, CANB) 1 km S Ulgera Gap on Coolanie-Yabmana road; 27.xii.1989, *P.J. Lang* 1835 (AD, CANB, CBG, DNA, HO, K, MEL, NSW, PERTH), 0.9 km S Darke Peak silos.

E. aff. cretata (intergrades)

SOUTH AUSTRALIA: Eyre Peninsula Region: 18.x.1977, *P.J. Lang* 1071 (AD, CANB), 1072 (AD), 4.7 km E by road from crossroads 1 km E Tooligie Hill P.O.; 24.x.1977, *P.J. Lang* 1142 (AD), 1.5 km W Poolalie HS, c. 12 km NW Cleve; 24.x.1977, *P.J. Lang* 1149 (AD), 0.3 km SW Coolanie; 8.v.1981, *P.J. Lang* 1593, 1594, 1589 (all AD), c. 8 km NW of Cowell, Section 39, Hundred of Playford; 27.xi.1985, *P.J. Lang* D8803 (AD), Section 1, Hundred of Hincks, c. 20 km due E of Peachna; 27.xi.1985, *P.J. Lang* D8785 (AD), road junction c. 20 km SE of Lock and 6 km NW of Hincks Conservation Park; 7.v.1987, *M. Bennell* & *G. Carpenter* D8741 (AD), Section 114, Hundred of Minbrie; 28.xii.1989, *P.J. Lang* 1836 (AD, CANB, NSW), 1 km ESE Rudall.

Distribution, habitat and variation

E. cretata has a limited distribution on central Eyre Peninsula (Fig. 6) with its major occurrences associated with two prominent inselbergs which intrude through the extensive sand dune system: Carapsee Hill, composed of granite (N.C.S.S.A., 1974), and Darke Peak Range, composed of quartzite. *E. cretata* is notably absent from Caralue Bluff, a third inselberg of quartzite a little further north. The main occurrence is on the plain along the eastern side of Darke Peak Range. From Darke Peak township it extends along roadsides for about 6 km north and 7 km south, 2 km west to the base of the Range and 4 km north-east towards Carapsee Hill. A major population also occurs on the lower slopes of Carapsee Hill and around its base, principally on the south and east sides. This distribution mostly coincides with the areas of plain that have been shielded from the south-east trending dunes in the shadow of the inselbergs (Crocker, 1946, p. 87).

Smaller outlying populations occur in Hambidge Conservation Park west of Darke Peak Range, from Lock south-east towards Hincks Conservation Park, and at scattered localities in the system of low hills and ranges mainly north-west of Cleve and north-west of Cowell. The annual average rainfall is from 350 to 415 mm.

E. cretata usually grows in pure stands on grey-brown calcareous loams or clays, sometimes exhibiting gilgai formation. It is also common on fluvial sandy loams and red-brown clays derived from gneissic and granitic rocks.

Two variant forms or ecotypes of *E. cretata* may be recognised within the Carapsee Hill-Darke Peak district, although these are not considered distinct enough to warrant taxonomic status. On the rocky slopes of Carapsee Hill *E. cretata* is a straggly thin-stemmed mallee 1.5-3 m tall, growing in patches of low scrub interspersed with *Melaleuca uncinata* and *E. calycogona* on a skeletal, gravelly, dark red-brown loam (pH 6.5-7) derived from the granite. These forms tend to have twisted branches, very broad, ovate, sub-adult leaves, and relatively small, smooth fruits (Figs 7C, 8C). At the base of Carapsee Hill, gravelly, sandy loam (pH 7) overlies medium clay (pH 8.5-9). Here and elsewhere on the plain, *E. cretata* is a robust mallee or small tree to 7 m high. These forms tend to have more erect branches, longer more lanceolate leaves, and larger fruits that are often ribbed (Figs 7A, 8A, 8B, 8D).

Intergrades of *E. cretata* may morphologically approach *E. pileata*, *E. dumosa*, or *E. "anceps"*² and can be recognized by their weakly glaucous branchlets and/or smaller fruits and leaves (Fig. 9A). They may also have a more typical mallee habit with spreading stems and a denser canopy (Fig. 9B).

Although variable, *E. cretata* is a discrete and well-defined taxon in the Carapsee Hill-Darke Peak district where the most extensive populations occur. The flowering period is consistent and intermediate forms are very rare despite contact with non-glaucous species of series *Rufispermae*, namely *E. "anceps"* and *E. pileata* s. lat.

In smaller outlying populations intergrades are more prevalent and may occur alone, or together with typical *E. cretata* and/or other taxa of series *Rufispermae*.

These intergrades occupy an even wider range of habitats. They occur east of Tooligie Hill on brown sandy clay-loam over red calcareous heavy clay (pH 9). On the escarpment immediately north-west of Cowell they grow on rocky limestone slopes associated with an interesting convergent form of *E. socialis* with glaucous branchlets. About 25 km south-east of Lock they grow on small low-lying flats with heavy, dark grey-brown calcareous loam, which are scattered through the irregular dunefield. On these flats they form an almost pure community of stunted shrubs 1-2 m tall with little or no understorey. Examples of this unusually low mallee scrub adjoin, and probably extend into, Hincks Conservation Park.

Flowering period: (December) January-February.

Notes and affinities

The glaucous eucalypt at Carapsee Hill and Darke Peak has long been regarded as a possible new South Australian taxon. J.M. Black annotated one herbarium specimen (*E.C. Black, AD97631412*) collected in 1951, as *E. pileata* "var. *argentea*". Presumably, it fitted the existing broad concept of *E. pileata* on the basis of the strongly ribbed operculum. Eichler (1965) recognized a possible outlier of the Western Australian taxon *E. clelandii* (Maiden) Maiden, based on an early determination by Maiden of a Darke Peak collection (*W. Gill, xii.1914* [NSW]). Boomsma (1981) treated it as a southern outlier of *E. striaticalyx* W. Fitzg., although he had earlier proposed describing it as a subspecies of *E. cyanophylla* Brooker, (Boomsma, pers. comm.).

The distinctness of *E. cretata* from its nearest relatives is largely due to the single character of glaucous branchlets. This feature is characteristic of many taxa of series *Rufispermae* in Western Australia, but its only other South Australian occurrence in the series is in north-western desert forms currently included in *E. striaticalyx*.

Of existing taxa, *E. cretata* is morphologically most similar to *E. cyanophylla* but can be

2. Both authors believe that at least most of the type material of *E. anceps* (R. Br. ex Maiden) Blakely is *E. rugosa* R. Br. ex Blakely, and the taxon known as *E. anceps* requires a new name.

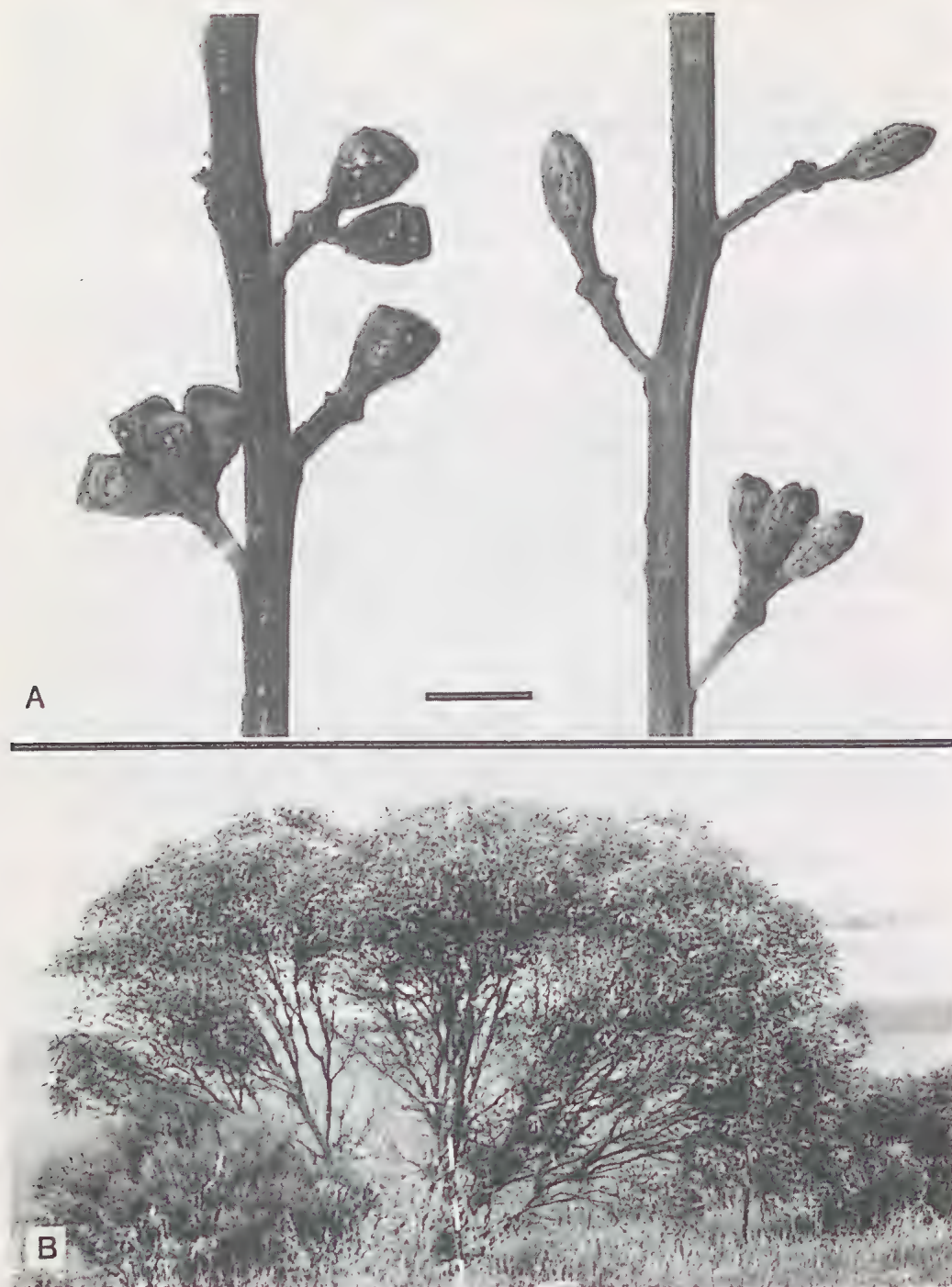


Fig. 9. *E. aff. cretata* (intergrade) P.J. Lang 1072, c. 6 km E Tooligie Hill, showing: A, lightly glaucous branchlets, fruits and buds (scale = 1 cm); B, spreading mallee habit (3.8 m tall) with dense canopy of fine foliage.

distinguished by its glaucous branchlets, its grey-green and subglaucous leaves (rather than bluish grey and strongly glaucous), and summer rather than winter flowering. It is also allied to north-western desert forms currently included in *E. striatocalyx* but differs in consistently having glaucous branchlets, and in shorter pedicels, smaller fruits, and absence of rough basal bark. It differs from the superficially similar *E. sheathiana* Maiden, *E. georgei* Brooker & Blaxell and allied forms with glaucous branchlets in Western Australia in its strongly ribbed operculum and coarse, broadly pedicellate fruit.

Conservation status

E. crenata is well conserved in Carapsee Hill Conservation Park and smaller outlying occurrences are represented in Hambidge Conservation Park. In the Darke Peak district its habitat is highly prized for agriculture and although widespread, it occurs mainly in road and railway reserves and other small remnants. Overall, it is considered to be rare and the status code 2RCa is suggested using the criteria of Briggs & Leigh (1989).

Key to species of series *Rufispermae* in South Australia

- A Mature leaves finally glossy and green:
 - B Fruits sessile:
 - C Fruit length/width ratio < 0.8 , peduncles 4-8 mm long *E. conglobata*
 - C Fruit length/width ratio > 0.8 , peduncles 7-15 mm long *E. "anceps"*
 - B Fruits pedicellate:
 - D Mallee; leaves always glossy; operculum much wider than hypanthium *E. pileata*
 - D Tree; leaves initially dull, ageing glossy; operculum slightly wider or flush with hypanthium *E. calcareana*
- A Mature leaves dull, green to bluish-grey:
 - E Fruiting pedicels 4-7.5 mm long, sharply defined; fruits to 13 mm long; often with fibrous bark basally *E. aff. striatocalyx*
 - E Fruiting pedicels < 4 mm long, sharply defined or broadly grading into hypanthium; fruits to 10 mm long; entirely smooth-barked:
 - F Leaves coarse and thick, 2-3 cm wide, glaucous; fruits 7-10 mm long:
 - G Branchlets glaucous, leaves grey-green *E. crenata*
 - G Branchlets non-glaucous, leaves bluish-grey *E. cyanophylla*
 - F Leaves moderately fine and thin, 1-2 cm wide, green and non-glaucous to strongly glaucous; fruits 5.5-8.5 mm long:
 - H Operculum much wider than hypanthium, strongly ribbed (ribs 0.8-1.3 mm high); fruit often weakly ribbed *E. percostata*
 - H Operculum more or less flush with hypanthium, weakly ribbed (ribs 0.1-0.5 mm high); fruit smooth *E. dumosa*

Acknowledgements

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NEW TAXA, NAMES AND COMBINATIONS IN *LINDERNIA*, *PEPLIDIUM*, *STEMODIA* AND *STRIGA* (SCROPHULARIACEAE) MAINLY OF THE KIMBERLEY REGION, WESTERN AUSTRALIA

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Abstract

Within *Lindernia* a new subgenus *Didymadenia* with 2-celled sessile glands and 4(5) angled seeds with evenly spaced transverse ribs between the angles is described, together with the new species *L. aplectra*, *L. chrysoplectra*, *L. cleistandra*, *L. eremophiloides*, *L. hypandra* and *L. tectanthera*, and the new combination *L. macrosiphonia*, based on *Rhamphicarpa macrosiphonia* FvM. The union of the Australian genus *Morgania* R. Br. with *Stemodia* gives rise to the new combination in the latter for *M. pubescens* R. Br., the new names *S. florulenta* for *M. floribunda* Benth. (non *S. floribunda* (R. Br.) Roberty), *S. glabella* for *M. glabra* R. Br. (non *S. glabra* Oersted ut Sprengel), and *S. lathraia* for *M. parviflora* Benth. (non *S. parviflora* Ait.), and the new species *S. tephropelina*. *Peplidium aithocheilum* and *Striga squamigera* are further new species described.

The following additions to the knowledge of Australian Scrophulariaceae pre-empt revisionary studies being undertaken by the author over many years. They have been produced to make names available for the forthcoming 'Flora of the Kimberley Region', and represent only the most obvious modifications to the current taxonomic knowledge of the family.

Colour of the floral parts comes from specimen annotations, supplemented by field observations in the case of the new *Peplidium* and *Stemodia* species, and by observations of those dried specimens which have apparently retained their colour. All measurements are taken from dried material.

LINDERNIA All.

Currently *Lindernia* is circumscribed to encompass the genera *Vandellia*, *Ilysanthes* and *Bonnaya* (Pennell 1935, Philcox 1968, Yamazaki 1981, 1985), which were previously separated mainly on staminal characters (e.g. Brown 1810; Bentham 1869 in Australian works). Today these former genera are still recognized at an infrageneric level. In erecting a new subgenus below, I have followed Yamazaki (l.c.) in according subgeneric rank to these former genera, thus allowing for the recognition of sections within each.

The Australian species of *Lindernia* form a distinct group in the genus by the apparently unique characteristic of the sessile glands which occur on the herbaceous parts. These sessile glands are 2-celled and have not been observed in any representative of the genus which does not occur naturally in Australia. Similarly, the seeds of this group of species differ to my knowledge from other members of the genus by their 4 or, once observed, 5 longitudinal angles and closely evenly spaced transverse ribs between them. A new subgenus is here erected.

Lindernia All. Subgen. *Didymadenia* W.R. Barker, subgen. nov.

Differt a subgeneribus alteris *Linderniae* glandibus sessilibus 2 cellulis aequalibus in partibus herbaceis et in fructibus, et seminibus longitudinaliter 4(5)-angulis costis transversis aequaliter dispositis.

Type species: *L. chrysoplectra* W.R. Barker

This subgenus, which is known to extend from Australia only into New Guinea (e.g., *L. scapigera* R. Br. and *L. subulata* R. Br.), has diversified greatly. It exhibits a remarkable array

of previously unrecognized modifications of the corolla and the stamens, which are surely linked to different pollination strategies, of which the species described below form only a small representation. The group is currently under revision.

The subgeneric name comes from the Greek, *didymos*, meaning twin and *aden*, gland, alluding to the 2-celled sessile glands.

***L. aplectra* W.R. Barker, sp. nov.**

L. subulata R. Br. var. *glanduligera* Specht in Specht & Mountford, Rec.Amer.-Austral. Sci. Exped. Arnhem Land 3, Bot. Pl. Ecol. (1958) 298, fig. 20.

Ad Subg. *Didymadenia* pertinens, speciebus 4 antheris bilocularibus affinis, sed sine calcaribus in filamentis inferis; in subgenere foliis anguste linearis usque subulatis *L. subulatae* R. Br. et *L. chrysoplectrae* W.R. Barker simulans, sed differt corolla parva et loculis minutis subcircularibus.

Holotypus: M.J. Clark 1208 & T.M. Orr, 17.vi.1989. Melville Island, Soldier Pt. road camp. 11°37'S 131°55'E. Weak stemmed herb; purple flower; seasonally inundated swampy area adjacent to perennial creek; open woodland, sandy clay loam. AD98931160. *Isotypus*: DNA (n.v.).

Slender, ascending to erect, annual herb, 4.5-35 cm high, fleshy-stemmed (*Pullen 9199*, *Henshall 1603*), glabrous apart from the inflorescence; stems and branches 4-ribbed through a smooth rib decurrent from either side of each leaf; internodes longer than the leaves, 1-11.5 cm long, not very short at the base. *Leaves*: basal ones subulate, c. 1 mm long; higher up narrow linear to narrow ovate-linear to subulate, (2) 4-15 x 0.5-1 (2) mm, with dilated almost amplexicaul sessile base, entire, bluntly acute. *Inflorescences* terminal racemes of c. 4-14 flowers, lax at the base, denser distally, the rachis and bracts glabrous; lower bracts like upper leaves, shortening to subulate distally; pedicels of lower flowers 1.5-3 mm long, elongating to 2.5-5 mm long in fruit, covered by sparse to moderately dense glandular hairs 0.1-1.2 mm long. *Calyx* 3-3.6 mm long in flower, enlarged in fruit, pink to dark purple or purple-brown, with indumentum similar to the pedicels; sepals 5, free apart from very base, equal, narrow triangular to elliptic, 0.6-1.1 mm wide, finely ribbed down the midline, entire, acuminate. *Corolla* 2-lipped, 5.5-7.3 mm long along the upper side, white, purple, blue-purple or mauve on the upper lip and lower lobes, white elsewhere with purple striations in the throat; upper lip 1.2-2 mm long, emarginate; lower lip longer than the upper, 1.7-3.6 mm long. *Stamens* didynamous, with 2 pairs functional anthers borne below the upper lip; anthers 0.4 x 0.2 mm, centifixed, their 2 locules end to end, 150°-180° divergent. *Capsule* ± globular, 2.5-3.5 x 2.2-3 mm, thin-walled, yellow-brown; seeds many, oblong-ellipsoid, 0.5-0.6 x 0.3-0.35 mm, with 4(5) angles alternating with grooves and evenly-spaced transverse walls between them, the areoles so-formed $\frac{1}{3}$ - $\frac{1}{2}$ as long as wide.

Distribution & ecology

Spread across subtropical northern Australia, *L. aplectra* grows on floodplains, around swamps or on escarpments, in seasonally wet situations, amongst herbs, sedges and grasses, in sand to clayey soil.

Flowers and fruits: April - August.

Notes

L. aplectra is allied to the species of Subg. *Didymadenia* with four 2-locular anthers, but unlike them lacks spurs on the lower filaments. By its narrow linear to subulate leaves it is closest to *L. subulata* R. Br. and *L. chrysoplectra* W.R. Barker, but it differs from them by its small corolla and minute ± circular anther locules.

The three Western Australian specimens have much shorter glandular hairs than in the

collections from Northern Territory and Queensland. They may constitute a separate taxon.

The adjectival epithet derives from the Greek prefix *a-*, meaning without, and *plectros*, spur, indicating the lack of the characteristic spurs on the lower filaments in *Lindernia*.

Specimens examined

WESTERN AUSTRALIA. GARDNER: *A.C. Beaglehole* 51746, 31.v.1976, Gibb River – Kalumburu Mission Road 8.5 km S of Doggan River \pm 190 km W of Wyndham, PERTH; *A.S. George* 12430, 19.viii.1974, Blyxa Creek, Prince Regent River Reserve, PERTH; *A.S. George* 13907, 16.viii.1975, Carson Escarpment S. of Coucal Gorge, Drysdale River National Park, PERTH.

NORTHERN TERRITORY. DARWIN & GULF: *R.M. Barker* 462 & *C. Scarlett*, 6.v.1983, Along Winmura Billabong track, turnoff 15 km along Oenpelli road from Arnhem Highway, AD; *R.M. Barker* 479, 8.v.1983, Moline Rockhole, turnoff 9 km N of Mary River on Pine Creek – Jabiru road, AD; *M.J. Clark* 1208 & *T.M. Orr* (see type); *N.M. Henry* 157, 9.vi.1971, 13 m SSW Bing Bong H/S., AD; *T.S. Henshall* 1603, 3.vii.1977, 15°43'S, 134°32'E, Cox River Station, AD; *G.J. Leach* 2479 & *Dunlop*, Catchment of Haywood Creek, AD; *B. Rice* 3128, 14.iv.1979, Nabarlek, DNA; *D.E. Symon* 7967F, 28.vi.1972, 8 km W of Rum Bottle Creek, AD (ex ADW); *B.S. Wannan*, *C.J. Quinn* & *K. Brennan* UNSW20248, 10.v.1987, Oenpelli Rd., 15.4 km N of the Arnhem Hwy. T[urn] O[ff]. – Northern side of Wirnmuyurr Swamp . . . adjacent to a sandy channel (of 7J C[ree]k), AD.

QUEENSLAND. COOK: *J.R. Clarkson* 3692, 23.vi.1981, 8 km south of Koolburra on the track south from Koolburra to the Kimba Road, AD; *J.R. Clarkson* 4510, 3.vi.1982, 1.3 km ESE of Aurukun on road to Watson River, AD; *J.R. Clarkson* 4737, 26.iv.1983, 0.9 km east of the Peninsula Development Road on an IWS track leaving the main road 0.5 km N of the Laura River Crossing, AD; BURKE: *R. Pullen* 9199, 11.v.1974, Near "Westmoreland", c. 30 km E of the Q/N.T. border, far NW Queensland, AD.

L. chrysoplectra W.R. Barker, sp. nov.

Ad Subg. *Didymadeniam* pertinans, 4 antheris bilocularibus, filamentis inferis calcaratis et absentia rosulae foliorum latorum *L. subulatae* R. Br. affinis, sed differt foliis plerumque longioribus anguste linearibus, et pilis glandulosis in calyce pedicellisque.

Holotypus: *Y. Power* 283, 31.iii.1967, 3 mls from Belina [sic!, = Blina] T[urn] O[ff] off Fitzroy Rd., PERTH. *Isotypus*: AD99018303.

Delicate 'fleshy-stemmed' annual herb, (8) 12-28 cm tall, with slender ascending branches, glabrous apart from the inflorescence, usually with all nodes from c. 1 cm above ground level developing branches, the lower ones sometimes further branched (*Power* 283); branches 4-ribbed, by a long rib decurrent from either side of each leaf; internodes above the lowest branch on stem 2-7 cm long, shorter below. *Leaves*: basal ones unseen, caducous by flowering time; higher up narrow linear to narrow ovate-linear to subulate, 4-15 (20) x 0.5-1 mm, the shorter ones in upper parts, sessile and dilated at base, entire, with a bluntly acute, often callose apex. *Inflorescences* terminal racemes, loose through the long internodes and pedicels, the rachis glabrous, the pedicels and calyx bearing moderately dense glandular hairs 0.8-1 mm long; the lowest bract similar in shape and size to the upper leaves, shorter higher up; lowest pedicels (8) 10-15 (17) mm long, shorter above. *Calyx* 2.8-4 mm long, the sepals free almost to the base, narrow triangular-ovate, acute to acuminate, 0.7 mm wide, smooth. *Corolla* 9-10 mm long along the upper side, bilabiate, the tube white, the lips purple, possibly with white extending onto the lower lip; tube 6-8 mm long; upper lip c. 2-3 mm long, emarginate, lacking the internal lateral flaps which enclose anthers in other Australian species; lower lip c. 0.5 mm longer than the upper, spreading, the lobes c. 2-5 mm long, equal, rounded. *Stamens*: both pairs fertile; anthers with purple or ?blue walls and white pollen, aligned side by side in pairs, both pairs 2-locular, c. 1.2 x 0.2 mm, the locules end to end (divergent to 180°); filaments of even thickness throughout, purple at least distally, the connective \pm equally as long as the anthers, ?white; upper filaments c. 1.2-2 mm long; lower filaments 2.5-5 mm long distal of the spur, the spur exserted from the corolla mouth, terete, c. 1.5-2.7 mm long, papillose, golden-yellow. *Style* 5.5-6 mm long, slender, straight, purple at least distally, the stigmatic flaps 2, \pm equal, obtuse to truncate, sometimes one acute and slightly longer. *Capsule* a broadly ovoid to

globular, thin-walled, septifragal 2 (?young)-3.5 mm long, much (?young) to just shorter than the calyx, densely covered by blister-like sessile glands; septum emarginate; seeds not seen.

Distribution & ecology

Confined to the south-west of the Kimberley province of Western Australia, but for a single record in the adjacent Great Sandy Desert, *L. chrysoplectra* occupies seasonally wet, sandy sites in closed grassland or woodland.

Flowers: March – August; fruits not collected prior to May.

Notes

Within Subg. *Didymadenia* *L. chrysoplectra* is allied to *L. subulata* R. Br. by its 2 pairs of 2-locular anthers, its spurred lower filaments, its narrow leaves and the absence of a basal rosette of broad leaves. From *L. subulata* differs by its usually longer, narrow linear leaves, and the glandular hairs on the calyx and pedicels.

The adjectival epithet derives from the Greek *chrysos*, golden-yellow, and *plectros*, spur, referring to the prominent exerted staminal spurs.

Specimens examined

WESTERN AUSTRALIA. DAMPIER: *B.J. Carter* 59, 10.viii.1987, Bobby's Creek, 15 km NE of Beagle Bay, Dampierland Peninsula, AD, PERTH; *K.F. Kenneally* 5947, 17.iv.1977, 5 km north of Point Coulomb, (17°19'S, 122°10'E), Dampier Peninsular [sic], north of Broome, PERTH; *K.F. Kenneally* 6200, 28.iv.1977, Between Lombadina Mission and Pender Bay, Dampier Peninsular [sic], north of Broome, PERTH; *K.F. Kenneally* 8546, 8547 (p.p.), 9.vii.1982, Prior's Bore, approx. 10 km N of Great Northern Hwy, at a point 135 km E of Broome along the Broome-Derby Road, PERTH, PERTH (p.p.); *K.F. Kenneally* 9053, 18.vi.1984, Wonganut Spring, 19 km ESE of Coulomb Pt., Dampier Peninsula, W. Kimberley, PERTH; *K.F. Kenneally* 10635, 6.iv.1988, Bobby's Creek, 20.3 km N of turn off to Beagle Bay on Cape Leveque-Broome Road, Dampierland Peninsula, PERTH; *Y. Power* 253, 14.iii.1967, 25 mi E of Derby on Beef Road, PERTH; *Y. Power* 283 (see type). HALL: *A.J. Ewart* s.n., v.1927, Near Christmas Creek, PERTH. GREAT SANDY DESERT: *W.K. Harris* & *J.P. Scibiorski* 24, 29.iv.1982, Eremophila No. 1 Original Site. CROSSLAND 1:250,000 SE51-16 (19°47'S 125°12'E), AD.

L. cleistandra W.R. Barker, sp. nov.

Ad Subg. *Didymadeniam* pertinens, speciebus solum 2 antheris superis fungentibus bilocularibusque; caractere in genere unico paris laminarum intro productarum e corolla et antheras includentium *L. eremophiloidi*, *L. tectantherae* et *L. hypandrae* affinis; *L. eremophiloide* differt foliis oppositis, sepalis liberis, corolla tubo ad calycem spectato longiore labiisque longioribus, et nectario parvo, speciebus alteris differt caulibus prostratis lignosis, absentia foliorum bractearum subulatarum, et indumento longe glanduloso.

Holotypus: *K.F. Kenneally* 9780, 30.v.1986. Western Australia. Hidden Valley, 3 km N of Kununurra, N.E. Kimberley, 15°47'S 128°46'E. In sheltered seepage areas on massive outcropping sandstone. Decumbent soft-leaved herb, leaves pale green, flowers mauve, with deeper mauve tinge on throat and purple striations; the upper and lower sections of the throat white, outer corolla [sic!] whitish to pale mauve. AD99018372. *Isotypi*: PERTH, 3 other duplicates to be distributed.

Procumbent perennial herb, with short leafy branches to c. 5 cm tall arising from prostrate occasionally branched woody stem or rhizome extending for 20 cm or more; branches in dried state with rib decurrent from either side of leaf base as far as node below; indumentum lacking or consisting of dense glandular hairs 0.2-1.5 mm long over branches, leaves and inflorescence apart from the corolla. Leaves crowded along the branches, opposite, narrow-elliptic to spatulate, the slender petiole 5-22 mm long, gradually dilated into the blade; blade narrowly to broadly, obovate to elliptic, 8-22 x 2-21 mm, coarsely short to long-serrate in the distal $\frac{2}{3}$ - $\frac{1}{3}$, acuminate to rounded with a short to long acuminate tip. *Inflorescences* dense leafy terminal

racemes of c. 1-8 flowers, not flowering in every axil; bracts like the leaves; pedicels almost as long to longer than the bracts, 7-10 mm long in flower, elongating as much as 40 mm in fruit. *Calyx* 2-7 mm long; sepals 5, free, equal, narrow elliptic 0.5-1 mm wide, acute to acuminate, green. *Corolla* 2-lipped, 8-18 mm long along the upper side, white, pale purple or mauve on the lips, white in the throat with fine striations in parts; tube funnel shaped, 2.5-3.5 times the length of the calyx; upper lip 2-5 mm long, porrect, emarginate, produced within into 2 longitudinal flaps meeting below and enclosing the anthers and stigma; lower lip widely spreading, 8-9 mm long, the 3 lobes rounded to truncate, the mid lobe broader than the laterals. *Stamens*: the 2 adaxial fertile, their anthers 1-1.8 x 0.3-0.4 mm, 2-locular, the locules end to end, 150-180° divergent; the 2 abaxial staminodes, each thicker towards base, c. halfway along produced into a short knob-like spur, then much finer and arched outwards and forwards, terminated by 2 minute vestigial anther locules. *Stigma* unequally 2-lobed, the longer lobe narrow elliptic, narrow acute, the shorter half its length. *Capsule* broad ellipsoid, 3.5-5.5 x 2.5-4.5 mm, thin-walled, septifragal into 2 valves, yellow-brown; seeds many, narrow ellipsoid to oblong, 1.3-1.9 x 0.5-0.7 mm, straight or slightly curved, pale yellow, with 4 longitudinal angles alternating with 4 grooves, with evenly spaced transverse ribs between each angle and groove, the areoles so formed $\frac{3}{4}$ -1 times as long as wide.

Distribution & ecology

Confined to the east Kimberley, Western Australia, and the adjacent Keep River area in Northern Territory, *L. cleistandra* occupies shaded crevices on sandstone rock-faces.

Flowers and fruits: March – September.

Notes

Within Subg. *Didymadenia* *L. cleistandra* is akin to those species with only the 2 upper (adaxial) stamens functional and 2-locular and the lower pair of stamens infertile. It shares with *L. eremophiloides* W.R. Barker, *L. tectanthera* W.R. Barker and *L. hypandra* W.R. Barker a character apparently unique in *Lindernia* of the longitudinal inwardly projected corollas flaps which enclose the anthers and style end. It is closest allied to *L. eremophiloides* by its prostrate woody stems and leafy inflorescences, but it differs from that species by its spirally arranged leaves, its sepals free to the base, its longer corolla tube relative to the calyx, its longer corolla lips, the afore-mentioned corolla flaps being entire, and by its smaller nectary. From the last two species it differs by its prostrate woody stems, by the absence of subulate leaves and bracts, and by its long glandular indumentum; *L. hypandra* differs further by its resupinate flower.

This, the following species *L. eremophiloides*, and another as yet unnamed species from Northern Territory have an unusual habitat on rock walls. The prostrate branched woody stem or rhizome presumably runs within crevices where soil and moisture persist. In this species the fruits are borne on greatly elongated pedicels which apparently occur on the underside of the plant. The white colour of the pedicels indicates their existence in poor light. This doubtless ensures that seed is shed into what soil exists in the rocky habitat.

Seasonal conditions may affect indumentum and leaf shape in this species. Most of the Kununurra material has been collected during the wet months of April and May; it is densely glandular hairy and has broadly bladed, spatulate leaves. Two later collections, *Beaglehole* 54242 in early July and *Gowland* 242 a 'dry season collection', have mainly narrow-elliptic leaves, although the former has a few spatulate leaves, and are glabrous or possess a few minute glandular hairs. The two Keep River specimens, both collected in the dry month of September, have narrow spatulate leaves. One is densely glandular hairy. In the other the indumentum is confined to the petioles and above the nodes, but the longest hairs are eglandular, possibly through loss of the gland tips, and only the shortest hairs are glandular.

The adjectival epithet is derived from the Greek *cleistos*, closed, and *andros*, male, describing the enclosure of the functional anthers by flaps within the corolla, unique to a few allied Australian species.

Specimens examined

WESTERN AUSTRALIA. GARDNER: *A.C. Beaglehole* 54242, 4.vii.1976, Kimberleys, 32 km WSW of Kununurra, Aboriginal Paintings area, AD, PERTH; *K. Coate s.n.*, iii.1989, Between Spillway and Stonewall Creeks off Ord River, Carr Boyd Ranges, East Kimberley, PERTH; *C. Done* 642, 3.v.1983, Hidden Valley National Park, near Kununurra, N. Kimberley, PERTH; *A.S. George s.n.*, 24.iv.1977, Hidden Valley, Kununurra, PERTH; *E.C. Glover CG97*, 11.iv.1982, Thompsons Springs 40 km S of Kununurra, just above Lake Argyle near NT Boundary, PERTH; *P. Gowland* 242, 1978, Kununurra area, DNA; *K.F. Kenneally* 9780 (see type); *V. Scarth-Johnson* 547, 4.ix., Mountain face, Kun[un]urra, K.

NORTHERN TERRITORY. VICTORIA RIVER: *A.S. Mitchell* 320, Keep River, 15°47'S, 129°02'E, CANB, NT; *A.S. Mitchell* 378, 23.ix.1975, Keep River, 15°47'S, 129°05'E, NT.

***L. eremophiloides* W.R. Barker, sp. nov.**

Ad Subg. *Didymadeniam* pertinet, speciebus solum 2 antheris superis fungentibus bilocularibusque; caractere in genere unico paris laminarum intro productarum e corolla et antheras includentium *L. cleistandrae*, *L. tectantherae* et *L. hypandrae* affinis, sed differt foliis alternatis, sepalis ad basem connatis, et nectario magno; etiam *L. cleistandra* differt corolla tubo ad calycem spectato brevioris labiisque brevioribus, et speciebus alteris caulibus prostratis lignosis, absentia foliorum bractearum subulatarum, et indumento longe glanduloso.

Holotypus: *K. Menkhorst* 480, 6.vii.1989. Western Australia. Bungle Bungle Massive [sic!] above Piccaninnie Gorge. 17°26'S 128°24'E. Pendulous herb on cliff face; corolla mauve with purple & red streaks on largest lobe, throat white. AD98931152. *Isotypi* (n.v.): DNA, PERTH.

Perennial herb, with pendulous (*Menkhorst* 480) leafy branches 6-33 cm long arising from a branched woody stem or rhizome, in the dried state with a fine rib decurrent from leaf base to several nodes below; indumentum on herbaceous parts of tiny glandular hairs 0.01-0.05 mm long, in some parts moderately dense in patches, in others sporadic or absent. *Leaves* alternate and spirally arranged, rarely (once seen) opposite, the slender petiole 5-12 mm long, gradually dilated into the blade; blade elliptic-linear to narrow elliptic, 12-40 x 2-8 mm, entire, narrowly acuminate with a long narrow tip. *Inflorescences* moderately dense leafy racemes of c. 6-50 flowers, not always flowering in consecutive axils; bracts like the leaves; pedicels c. half as long as the bracts, 10-25 mm long, hardly elongating in fruit. *Calyx* 5-7 mm long; sepals 5, free except in basal ⅙-1.3, equal, narrow ovate, 1-1.5 mm wide, long acuminate, green. *Corolla* 2-lipped, 7-11 mm long along the upper side, mauve or pink-lavendar, with purple and red streaks on lowest lobe, the throat white; tube funnel shaped, 0.9-1.3 times length of the calyx; upper lip 1.2-1.5 mm long, porrect, emarginate, produced within into 2 longitudinal flaps meeting below and enclosing the anthers and stigma and bearing a single tooth halfway along margin; lower lip widely spreading, 3-4.5 mm long, the 3 lobes rounded to shallowly emarginate, the mid lobe more than twice width of laterals. *Stamens*: the 2 adaxial fertile, their anthers c. 1.1 x 0.4 mm, 2-locular, the locules end to end, c. 180° divergent; the abaxial staminodes, each proximally thick, bearing on one side towards apex a curved vestigial filament and tiny anther. *Stigma* 2-flapped; ovary with a large nectary at the base. *Capsule* broad ovoid-ellipsoid, c. 4-4.5 x 3.2-3.4 mm, thin-walled, septifragal into 2 valves, yellow-brown; seeds not seen.

Distribution & ecology

Known only from Piccaninnie Gorge in the Bungle Bungle massif of the eastern Kimberley, Western Australia, *L. eremophiloides* grows in damp crevices on shaded cliff faces.

Flowers: known in April and July; *fruits* in July.

Notes

L. eremophiloides is perhaps unique in *Lindernia* in its alternate, spirally arranged leaves. Within Subg. *Didymadenia* it differs from other species by the fusion of the sepals for up to a third of their length. It is closely allied to *L. cleistantra*, but differs from it not only by its leaf arrangement, but also by its shorter corolla tube relative to the calyx length, by its shorter corolla lips, possibly by the marginal tooth on each of the longitudinal flaps within the upper corolla lip, and by its large nectary. It shares differences from the other species with *L. cleistantra*.

The adjectival epithet is derived from the resemblance of this species to members of the Australian genus *Eremophila*.

Specimens examined

WESTERN AUSTRALIA. HALL. *M.I. Blackwell* 115, 4.iv.1985, 254, 6.iv.1985, 276, iv.1985, Piccaninny Creek Gorge, 15 km SE of Bungle Bungle Outcamp, Bungle Bungle Range, PERTH (3 sheets); *K. Menkhorst* 480 (see type citation above); *K.F. Kenneally* 9285B, 12.vii.1984, Piccaninny Creek Gorge, 15 km SE of Bungle Bungle Outcamp, AD98510077, PERTH (2 sheets); *E.L. Robertson s.n.*, 11.vii.1989, Piccaninnie Gorge, Bungle Bungle, AD99018373; *A.S. Weston* 14715, 5.iv.1985, Piccaninny Gorge, Bungle Bungle Massif, Osmond Ranges, PERTH.

L. hypandra W.R. Barker, sp. nov.

Ad Subg. *Didymadenia* pertinens, 3 speciebus novis *L. cleistantrae*, *L. eremophiloidi* et *L. tectantherae* antheris styloque in pari laminarum intro productarum e corolla incluso, sed differt corolla resupinata per stamina fungentia laminasque interiores corollae in positione infera, labium superum corollae integrum et inferum lobo medio profunde fisso.

Holotypus: *K.F. Kenneally* 7726, 14.i.1982. Western Australia. Mitchell Plateau Airfield, Mitchell Plateau, N. Kimberley. 14°48'S 125°49'E. Growing at Airfield swamp. Erect rosetted herb. Leaves pale green, flowers pale mauve, fruit red. AD98814011. *Isotypi*: PERTH, 2 other duplicates to be distributed.

Erect annual, or possibly perennial, herb 12-28 cm high, glabrous or almost so, with many slender erect scapiform branches arising from a basal rosette of leaves or a single erect scapiform stem above 2-3 pairs of basal leaves; branches with a rib decurrent from either side of each leaf to the node below; internodes between the basal leaves 1-3 mm long, higher up 80-130 mm long. *Leaves* at base of plant elliptic to subspathulate, 3-35 x 1.5-15 mm, entire, obtuse to rounded at apex, sometimes with scattered glandular hairs 0.02-0.1 mm long, with 3-7 veins arising from the base; leaves on the scapiform branches subulate, 1-2 x 0.5 mm; acute. *Inflorescence* simple, terminating each branch, lax by the sidely spaced internodes, with 1-10 flowers single, rarely in pairs, at the nodes; bracts opposite, subulate and similar in size to the leaves below; pedicels longer than internodes, in flower 10-42 mm long, erect, bent below the calyx (?orienting the flower horizontally), in fruit angled obliquely downward, 16-42 mm long. *Calyx* 1.4-2 mm long; sepals 5, free, narrow elliptic, 0.5-0.6 mm wide, acuminate, incompletely red-striated. *Corolla* 2-lipped, resupinate, 7.8-10.5 mm long along the adaxial (upper) side, from dried material pale mauve on the upper lip, sometimes also on the lobes of the lower lip, white elsewhere; tube 4-5 times length of the calyx; upper lip 1.2-1.5 mm long, entire, slightly recurved; lower lip spreading, c. 4.5-6 mm long, within the tube on either side behind the lowest lobe bearing a longitudinal flap enclosing the anthers and style, the mouth ringed by scattered white linear eglandular hairs c. 0.2 mm long, the lateral lobes rounded, the mid lobe longer than the laterals, with a deep cleft c. 1.4-2 mm deep. *Stamens*: the 2 adaxial (upper) ones short stout staminodes, the free distal part c. 0.3 mm long; the 2 abaxial (lower) ones 0.6-1.2 x 0.3 mm, 2-locular, the locules end to end, 150°-180° divergent. *Style* terminated by 2 broad stigmatic flaps. *Capsule* globular, 3.5-5 mm in diameter, thin-walled, dark brown; seeds (only young seen) many, obovoid to ellipsoid-oblong, 0.5-0.8 x 0.3-0.45 mm, pale yellow

to (?youngest seed) darkish brown, with 4 angles alternating with 4 grooves, with equally spaced transverse ribs between the ribs and grooves, the areoles so formed c. $\frac{1}{2}$ as long as wide.

Distribution & ecology

Known only from two collections from the Mitchell Plateau, northern Kimberley, Western Australia, *L. hypandra* has been once recorded from a swamp.

Flowers: known from August and January, fruits in January.

Notes

The flower of *L. hypandra* is resupinate. Not only is the upper or adaxial lip of the corolla entire and the lowest or abaxial lobe emarginate, the reverse of the situation typical in the genus, but the presence of longitudinal flaps extending from behind the lowest lobe of the corolla to enclose the fertile anthers and style borne on the lower side of the throat points to a relationship to *L. cleistandra*, *L. eremophiloides* and *L. tectanthera* with the reverse arrangement of the enclosure of the upper or adaxial anthers by similar flaps from behind the upper lip. It shares other diagnostic characters of the habit, stamens and capsule with these two species. Its habit is similar to *L. tectanthera*, with which it may occur sympatrically.

The adjectival epithet comes from the Greek prefix *hypo-*, beneath, and *andros*, male, alluding the evidence in the position of the anthers for the flower of this species being resupinate.

Specimens examined

WESTERN AUSTRALIA. GARDNER: *A.C. Beauglehole* 58853 & *E.G. Errey*, 22 & 23.viii.1978. King Edward River, \pm 50 km NE of Mitchell River Homestead. AD, PERTH; *K.F. Kenneally* 7726 (see type).

L. macrosiphonia (FvM.) W.R. Barker, comb. nov.

Rhamphicarpa macrosiphonia FvM., Proc. Linn. Soc. N.S.Wales, Ser.2, 6 (1892) 473, *basionym*.

[*Bradshawia* FvM., l.c., 473, *nom. prov.*]

This species is remarkable for its white, extremely long, \pm salverform corolla. Mueller (1892) was not happy about his placement of the plant in *Rhamphicarpa*, a genus with salverform corollas in the tribe of semiparasites, the Gerardieae. However, he did consider it to constitute an allied genus, which he provisionally called *Bradshawia*. Hansen (1975) excluded the species from *Rhamphicarpa* without explanation. It clearly does not belong to the semiparasitic tribes of Scrophulariaceae, as indicated by its drying green and lack of evidence of parasitic 'haustoria' and its corolla aestivation. Superficially it bears no resemblance to any species of *Lindernia*, although Yamazaki (e.g. 1985) has segregated his Indo-Chinese genus *Scolophyllum* with a similarly long-tubed corolla. The possession by this Australian species of 2-celled sessile glands, as well as its resemblance to species of Subg. *Didymadenia* in the stamens, pistil, pollen, capsules and seed, points clearly to its placement in that subgenus. The remarkable corolla matches that typical of hawk-moth pollination.

L. tectanthera W.R. Barker, sp. nov.

Ad Subg. *Didymadeniam* pertinens, 2 antheris superis solum fungentibus bilocularibusque et pari laminarum intro productarum e corolla et antheras includentium *L. cleistandrae*, *L. eremophiloidi* et *L. hypandrae* affinis, sed a duobus his differt duratione annua, ramis erectis e rosula basali foliorum exorientibus, inflorescentiis scapiformibus multifloris, corolla breviori lobis inferis emarginatis labioque supero recurvato, capsulis ovoideis et seminis parvissimis, ab illo corolla non resupinata antheris laminisque corollae post labium brevius adaxiale.

Holotypus: R.M. Barker 284, 25.iv.1983. Western Australia. Kimberley Region. 15°41'S 128°05'E. 23.3 km along King River road which is [= turns off] 6.7 km E of Wyndham on the Great Northern Highway. Common in grey clay depression on side of track. Erect herb, leaves prostrate, stems square, reddish near base. Flowers: lobes mauve, white in throat with striations on side and bottom, 2 yellow longitudinal areas to side of throat. Mixed with RMB 285. AD98504068. *Isotypi*: 5 duplicate sheets to be distributed.

Erect, sometimes possibly scandent, glabrous annual herb, 8-40 cm tall, with many slender scapiform branches arising from a basal cluster, sometimes almost a rosette of leaves, sometimes with only a single stem with leaves spaced in pairs at the base of the plant; main branches sometimes further branched in upper parts in the axils at one or two consecutive nodes below the terminal inflorescence, with a fine rib decurrent from either side of each leaf to the node below; the lowest 2-several internodes 0.5-3 mm long, distally much longer than the leaves, 15-140 mm long. *Leaves* at the base spatulate, 6-22 mm long, with the petiole 1-5 mm long, the blade ovate to obovate, sometimes narrowly so, 3-15 x 1.5-8 mm, entire, shallowly coarsely sinuate, or shortly coarsely serrate in the distal ½, obtuse to acuminate; those higher up occasionally like the lower leaves in robust, possibly scandent, plants, distally subulate, 1-4 mm long. *Inflorescence* terminal racemes, sometimes apparently paniculate owing to lateral branches, with c. 1-10 widely spaced flowers; bracts subulate like the distal leaves; pedicels longer than the internode above, in flower erect to ascending, 5-28 mm long, in fruit downturned obliquely, 15-40 mm long. *Calyx* 2-3.2 mm long; sepals 5, equal, free apart from the very base, ovate-elliptic, 0.3-0.8 mm wide, finely ribbed, often reddened, long acuminate. *Corolla* 2-lipped, 6-8 mm long along the upper side, blue, purple or mauve on the upper lip, often also on the lower lobes, white elsewhere; tube funnel-like, 2.5-4.5 times the length of the calyx, with white linear eglandular hairs surrounding the mouth c. 0.2 mm long; upper lip recurved, 1-1.5 mm long, shallowly emarginate, produced within on either side into 2 longitudinal flaps enclosing the anthers and style end; lower lip widely spreading, 4-6.5 mm long, the lobes shallowly broadly emarginate, the mid lobe wider than the laterals. *Stamens* with adaxial or upper 2 anthers functional, 0.8-1 x 0.25-0.3 mm, with 2 locules end to end, 170°-180° divergent, with 2 abaxial staminodes proximally thick, porrect, near the apex often bearing a short to long, filiform filament vestige which is either arched forward or reflexed and is terminated by a minute anther vestige. *Style* with 2 equal obovate flap-like stigmas. *Capsule* (no mature seen) ovoid-elliptic or broadly so, 3.2-4 x 2.5-2.8 mm, thin-walled, yellow-brown; seeds (immature seen) many, broad obovoid to oblong-ellipsoid, 0.3-0.35 x 0.2-0.25 mm, pale yellow, with 4 longitudinal angles, concave between, with a few obscure transverse ribs between the angles, the areoles so formed much wider than long.

Distribution & ecology

Restricted to the northern Kimberley, Western Australia, apart from one record from the Dampier Peninsula in the south-west of the region, *L. tectanthera* is recorded from seasonally wet sites in sand, gravel or clay with dense herbage or grasses.

Flowers and fruits: January – August.

Notes

L. tectanthera shares with *L. cleistandra*, *L. eremophiloides* and *L. hypandra* the character unique in the genus of longitudinal flaps within the corolla which enclose the anthers and style end, as well as the 2 adaxial or upper stamens with functional 2-locular anthers and a pair of staminodes behind the abaxial or lower corolla lip. It differs from the first two species by its annual duration, its erect branches arising from a basal rosette of leaves, its scapiform floriferous inflorescences, its shorter corolla with emarginate lower lobes and a recurved upper lip, its ovoid capsules and its much smaller seeds; from *L. eremophiloides* it differs further in its

opposite leaves, free sepals and small nectary. From the third species it differs by its normally oriented corolla with the anthers and corolla flaps associated with the shorter, adaxial lip.

The species as here constituted is variable in habit and possibly capsule shape, but particularly in the nature of the staminode. A further 8 collections not included in the above description have glandular hairy pedicels and may represent a distinct taxon. Field studies are needed to clarify these problems.

The adjectival epithet has the same meaning as *cleistandra*, and comes from the Latin words *tectus*, covered, and *anthera*, anther.

Specimens examined

WESTERN AUSTRALIA. DAMPIER: *K.F. Kenneally 8547* (p.p.), 9.vii.1982, Prior's Bore, approx. 10 km N of Great Northern Hwy, at a point 135 km E of Broome along the Broome-Derby Road, PERTH (p.p.). GARDNER: *R.M. Barker 284* (see type); *A.C. Beaglehole 54298*, 32 km WSW of Kununurra Aboriginal Paintings area, PERTH; *A.C. Beaglehole 58944* & *E.G. Errey*, 22 & 23.viii.1978, King Edward River. \pm 50 km N.E. of Mitchell River Homestead, AD, PERTH; *J.V. Blockley 904*, 12.viii.1968, Near Argyll Lagoon, S. of Kununurra, PERTH; *G.W. Carr 3129* & *A.C. Beaglehole 46887*, 7.vii.1974, Lake Argyle Road, between Dead Horse Springs and Spillway Creek turn-offs, PERTH; *A.S. George 12434*, 19.viii.1974, Blyxa Ck., Prince Regent River Reserve, PERTH; *K.F. Kenneally 2007*, 14.viii.1974, E2 Prince Regent River Reserve, CANB, PERTH; *K.F. Kenneally 7029*, 4.ii.1979, Mitchell Plateau (adjacent to Airfield) N.W. Kimberley, AD, PERTH; *K.F. Kenneally 7715*, 14.i.1982, Mitchell Plateau Airfield, Mitchell Plateau, N. Kimberley, PERTH; *K.F. Kenneally 7747*, 15.i.1982, 9 km NW of Mitchell River Falls, Mitchell Plateau, N. Kimberley, PERTH; *K.F. Kenneally 8049*, 21.iv.1982, Airfield, 3 km N of CRA mining campsite, Mitchell Plateau, PERTH; *K.F. Kenneally 8231*, 5.v.1982, Racecourse swamp, 3 km S of township Kununurra, N. Kimberley, AD, PERTH; *M. Lazarides 8686*, 23.iii.1978, Ashton Range, 42 km SSE of Theda HS., north-eastern Kimberleys, PERTH; *J.H. Willis s.n.*, 21.v.1984, Napier Broome Bay - West Bay, road to disused Truscott Air Base, ca. 1 km from coast, AD.

PEPLIDIUM Delile

In earlier treatises involving Australian members of Subtrib. Mimulinae (Barker 1981, 1982), it was doubted whether *Peplidium* should be separated at a generic level from *Microcarpaea*. The subsequent discovery that the latter has multiporate operculate pollen (Barker, unpubl.), unique in the family and distinct from the tricolporate pollen of *Peplidium*, indicates that the best course is to maintain generic separation of the two, although the question raised in Barker (1982) on the cladistic relationship remains unanswered.

P. aithocheilum W.R. Barker, sp. nov.

P. muelleri ssp. B: W.R. Barker in Jessop, Fl.C.Austral. (1981) 331.

P. muelleri auctt. non Benth.: e.g., J. Black, Fl. S. Austral. (1926) 510 (excl. var. *longipes*).

Speciebus duobus nominatis *Peplidii* affinis staminibus duobus, sed differt ab ambo corolla rosea usque brunnei-rosea, a *P. maritimo* (L.f.) Asch. (syn. *P. humifuso* Delile) differt corolla maiore de fructu crescenti caduca, et a *P. muelleri* Benth. duratio annua, floribus solitariis, et corolla parviore.

Holotypus: *W.R. Barker 5928*, 23.viii.1989, Stuart Highway, adjacent to Pootnoura Railway Siding, by road ca. 64.5 km S of Cadney Park and ca. 84.5 km NNW of Coober Pedy; ca. 500 m N of turnoff and ca. 300 m NE of yards, AD99021123. *Isotypi*: 2 to be distributed.

Prostrate annual herb, aquatic in shallow water with floating leaf rosettes terminating short to long leafless branches, or (most plants seen) terrestrial and prostrate, with branches radiating from a small rootstock, 0.5-10 cm long; indumentum of eglandular hairs c. 0.05-0.3 mm long, dense in younger parts on the branches and petioles, sometimes on the leaf blades and calyces, particularly the tube angles and margins, ?sparser on older parts. *Leaves* with petioles 0.05-0.2 cm long; blade circular to broadly obovoid, 0.2-0.3 x 0.2-0.3 mm, rounded at the apex.

Flowers in terminal racemes, 1 (2: *Royce 6971*) in the axils of leaf-like bracts; pedicels 0.5-1.5 mm long, elongating to 0.9-1.8 mm in fruit. *Calyx* cylindrical to campanulate, 1.5-1.7 mm long; teeth 0.1-0.2 mm long, rounded to truncate. *Corolla* pink-white to mid pink, the tube as long as the calyx, the 2-lipped limb spreading, 1-1.2 mm long, the red-brown palate comprising 2 bumps behind the lower lip. *Anthers* 2, 0.4 x 0.3 mm, pale yellow. *Stigma* red-brown, fringed with white. *Capsule* exserted from the enlarged persistent calyx, broadly ovoid, 1.8 x 1.6-1.8 mm, surmounted by a persistent style and old corolla, thick-walled, dehiscing around the base and then loculicidally and sometimes septicidally from the base towards the apex; seeds many, obliquely obovoid, rarely obloid-ellipsoid?, 0.35-0.45 x 0.2-0.35 mm, angular longitudinally, mid to dark brown, rounded to obtuse at the point of attachment, truncate distally, finely reticulate from fine longitudinal ribs with similar transverse walls, the areoles c. 1.5-2 times as long as wide.

Distribution & ecology

Widespread across northern and central arid Australia in Western Australia, Northern Territory and South Australia, *P. aithocheilum* occupies seasonally inundated waterholes in creek beds or swamps or on flood plains, in sandy to clayey soils.

Flowers and fruits: February - September, with one flowering collection in mid January.

Notes

P. aithocheilum shares with its two named congeners the possession of a single pair of stamens. It differs from both by its pink to brown-pink corolla, from *P. maritimum* (L.f.) Asch. by its larger corolla which is readily shed from the developing fruit, and from *P. muelleri* Benth. by its annual duration and its solitary flowers.

The adjectival species epithet derives from the Greek *aithos*, meaning reddish-brown, and *cheilos*, lip, alluding to the distinctive colour of the palate on the lower corolla lip.

Specimens examined

WESTERN AUSTRALIA. DAMPIER: *R.D. Royce 6971*, 11.v.1962, Kallyeeda Stn., Fitzroy River, PERTH. ASHBURTON: *R.J. Chinnock 4656*, 15.ix.1979, 20.7 km ENE of Prenti Downs, AD. AUSTIN: *W.E. Blackall 4128*, 11.ix.1939, Between Leonora & Malcolm, PERTH. GIBSON DESERT: *A.S. George 9009*, 27.vii.1967, \pm 7 miles W of Dovers Hills, northern Gibson Desert, PERTH.

NORTHERN TERRITORY. CENTRAL AUSTRALIA NORTH: *W.R. Barker 2825* (p.p.), 19.viii.1978, Tanami Desert; ca. 4½ km by road WSW of Kims Bore on track to Ferdies Bore; ca. 30 km WNW of Mongrel Downs Homestead, AD; *A.C. Beaglehole 50500*, 16.v.1976, Tanami Desert Wildlife Sanctuary; near Chilla Well Bore; ca. 390 km N.W. of Alice Springs, AD; *A.C. Beaglehole 58070 & E.G. Errey 1770*, 5.viii.1978, Stirling Creek, 30 km SW of Barrow Creek, Stuart Highway, AD; *C. Dunlop 2457*, 20.i.1972, Central Mt. Wedge H/S., AD; *T.S. Henshall 3422*, Mt. Allan. Lake edge near homestead, AD; *P.K. Latz 2523*, 20.v.1972, Cockroach Waterhole, Manners Ck. Stn., AD; *P.K. Latz 4068*, 21.vii.1973, 14m S Rabbit Flat, AD, PERTH; *P.K. Latz 5595*, 3.vii.1974, Stirling Swamp, AD; *P.K. Latz 8382*, 30.v.1980, Rabbit Flat Road House, AD; *D.J. Nelson 333*, 20.vi.1962, Tomahawk Soak, 13 m. N.E. Utopia H.S., CANB, NSW, NT. CENTRAL AUSTRALIA SOUTH: *A.C. Beaglehole 28003/5*, 29.vii.1978, Simpson Desert, 8.9 miles W. of Old Andado Homestead, 3.1 miles E. of New Andado Homestead, AD, NT; *R. Buckley 1655*, *ANU26555*, 21.viii.1976, Flats S of 1st dune S. of Andado 180 m, CANB; *Kempe 27*, 1885, Between the Finke River and Charlotte Waters, MEL; *P.K. Latz 5031*, 28.iv.1974, Curtin Springs Stn., AD (2 sheets).

SOUTH AUSTRALIA. NORTH-WESTERN: *W.R. Barker 6111*, 30.viii.1989, Ca. 11.7 km along E-W shotline track W of railway line which intersect at a point ca. 12 km by road along the Stuart Highway SSE of Marla Roadhouse, AD; *H. Basedow 301*, vii.1926, Musgrave Ranges, NSW, PERTH. LAKE EYRE BASIN: *F.J. Badman 1114*, 1.vi.1984, McAlpine Bore, Anna Creek Station, 7 km W of William Creek, AD; *W.R. Barker 3544*, 3546, 16.ix.1978, Stuart Highway, ca. 46 km by road S of Coober Pedy, AD; *W.R. Barker 5928* (see type).

STEMODIA L., nom. conserv.*Morgania* R. Br., Prodr. (1810) 441

Differences between members of the Australian genus *Morgania* and the Australian representatives of *Stemodia* have been misconstrued (Barker 1981,b; 1986); Bentham's (1869) fruit characters are imaginary, both groups of species having the same mode of dehiscence. Furthermore, the Australian species of *Stemodia* show no correlated differences from their congeners in the Americas. As a result the Australian genus *Morgania* is here reduced to synonymy under *Stemodia*. The several species first placed by Brown (1810) and Bentham (1848, 1869) under *Morgania* are transferred for the first time to *Stemodia*, and a new species common in the Kimberley region is described.

S. florulenta W.R. Barker, comb. nov.

Morgania floribunda Benth. in T.L. Mitchell, *J. Trop. Austral.* (1848) 384, (non *S. floribunda* (R. Br.) Roberty which is based on *Herpestis floribunda* R. Br.), replaced synonym.

Note: The adjectival epithet is from the Latin *flos*, flower and *-ulentus*, abundant, thus maintaining the reference in the replaced epithet to the prolific flowering of this species through the development of more than one flower in each bract axil, diagnostic amongst the Australian species.

S. glabella W.R. Barker, nom. nov.

Morgania glabra R. Br., Prodr. (1810) 441, (non *S. glabra* Oersted ut Sprengel), replaced synonym.

Note: The adjectival Latin epithet, derived from *glaber*, glabrous and *-ellus*, a suffix denoting the diminutive, describes more accurately than the replaced epithet the subglabrous nature of the plant which may bear tiny glandular and/or eglandular hairs on the calyx and bracteoles.

S. lathraia W.R. Barker, nom. nov.

Morgania parviflora Benth., Fl. Austral. 4 (1869) 489 (non *S. parviflora* Ait.), replaced synonym.

Note: The adjectival epithet comes from the Greek, *lathraios*, meaning stealthy, alluding to the difficulty in seeing the plant amongst its common grass and herb associates.

S. pubescens (R. Br.) W.R. Barker, comb. nov.

M. pubescens R. Br., Prodr. (1810) 441, *basionym*.

S. tephropelina W.R. Barker, sp. nov.

S. grossa auctt. non Benth.: e.g., Kenneally, Checklist Vasc. Pl. Kimberley W. Austral. (1990, as 1989) 60, 94, ?p.p.

Intra species indumento solum eglanduloso extra inflorescentiam, *S. pubescentem* (R. Br.) W.R. Barker et *S. lythrifoliam* FvM. ex Benth., differt calyce indumento glanduloso seminisque papillois, ab hoc indumento densiore foliisque latoribus, ab illo floribus saepe pedicellatis; intra species indumento glanduloso extra inflorescentiam differt seminis papillois, a *S. viscosa* Roxb. (*S. flaccida* W.V. Fitzg. inclusa) et *S. grossa* Benth. foliis semper oppositis pilisque flexuosis longis, et a *S. debilis* Benth. sepalibus subaequalibus foliisque sessilibus.

Holotypus: W.R. Barker 2757, 10.viii.1978. Northern Territory, Victoria River District. Ca. 300 m W of second to eastern-most crossing of Companion Creek by road to Victoria River Downs; ca. 8½ km by road NW of junction at Top Springs roadhouse with Wave Hill-Katherine road (16°30'S, 131°44'E). Altitude 150-200 m. Forming prolific population in open small to broad (30 m square) depressions in grey (sand-)stony clay plain covered by dense tussock grassland with occasional lone small trees. Low perennial with branches prostrate and finally erect to ascending to erect. A month after unusual rains (normally dry season), possibly

explaining few larger-leaved plants. Dead remains of taller plants from previous wet season rarely apparent (some collected). Foliage with sweet light minty scent. Corolla tube green-yellow all around, lower side of mouth mid-yellow to base of lobes, lobes very pale blue behind, mid-blue in front. Tube rather closed, upper lobes erect, lower at 45°. Anthers yellow, stigma white. Colour, black and white photo's taken. Cutting taken. Cytological material taken. AD97925154. *Isotypi*: 9 or more duplicates to be distributed.

Lightly \pm mint-scented, apparently short-lived perennial herbs, c. 4-30 cm tall; branches arising extensively from the nodes at ground level, procumbent to ascending, sometimes rooting on the prostrate parts; indumentum on the branches, leaves, rachis and bracts, shortly villous, consisting of flexuose multicelled simple eglandular and/or glandular hairs 0.4-0.8 mm long overtopping moderately dense, very short glandular hairs c. 0.1 mm long, on the pedicels, bracteoles and sepals at the lower nodes as on the other parts, grading in distal parts to densely glandular pubescent, the hairs 0.15-0.2 mm long. *Leaves* opposite, sessile, narrow elliptic-obovate to narrow oblong, on the main branches 0.6-4 x 0.2-1 cm, with cuneate to rounded or auriculate base, serrate with the teeth in the distal half scattered along the margins, acute. *Inflorescences* open racemes up to 20 cm long of up to c. 20 flowers arranged singly in the bract axils, sometimes paniculate through the presence of axillary racemes; bracts like upper leaves, the lower ones usually longer than the subtended flower, the distal ones or those on short axillary inflorescences as long or shorter than the flower; pedicel 1-10 mm long; bracteoles \pm opposite at the summit of the pedicel, triangular-linear to linear, shorter than the sepals. *Sepals* triangular-linear, \pm equal, 4-5.5 mm long. *Corolla* with lips mid blue at the front, pale blue behind, and greenish-yellow tube grading to mid yellow at the base of the lower lobes, 9.5-11 mm long along the upper side, the mouth narrow, upper lobes upcurved, lower lobes decurved, not overlapping. *Capsule* included in the persistent calyx, ovoid, 3-3.5 x 1.6-1.8 mm; seeds oblong-ellipsoid, 0.25-0.4 x 0.15-0.2 mm, yellow-brown to dark brown, minutely papillose.

Distribution and ecology

Occurring in subtropical northern Western Australia and Northern Territory, *S. tephropelina* is confined to clay soils, often the grey cracking type; it grows in open tussock grass plains with scattered trees, sometimes seasonally inundated, and often in depressions.

Flowers and fruits: April - September (October).

Notes

In the absence of a natural infrageneric classification of *Stemodia* in Australia *S. tephropelina* is compared with the densely tomentose Australian species. From the species with solely eglandular indumentum on the vegetative parts, *S. pubescens* (R. Br.) W.R. Barker and *S. lythrifolia* FvM. ex Benth., it differs by its glandular hairy calyx and papillose seeds; from the former it is also distinguishable by its much denser indumentum and broad leaves, and from the latter by its often pedicellate flowers. Relative to species with glandular indumentum on the vegetative parts it differs by its papillose seeds; from *S. viscosa* Roxb. (including *S. flaccida* W.V. Fitzg.) and *S. grossa* Benth. it is also distinct by its consistently opposite leaves and flexuose long hairs, and from *S. debilis* Benth. it can be further separated by its subequal sepals and sessile leaves.

The adjectival epithet comes from the Greek *tephros*, ash-coloured, and *pelinos*, pertaining to clay, alluding to the habitat of this species.

Selected specimens examined (34 collections seen)

WESTERN AUSTRALIA. FITZGERALD: *W.V. Fitzgerald* 893, v.1905, Isdell River near Graces Knob, PERTH. DAMPIER: *R.J. Cranfield* 6434, 18.iv.1988, 3 km SE of Brooking Gorge, AD, PERTH; *Froggat s.n.*, 1887, King's

Sound, MEL77576; *K.F. Kenneally* 9789, 1.vi.1986, Track to Barnett River Gorge off Gibb River Road, Central Kimberley, AD, PERTH. GARDNER: *R.M. Barker* 263, 23.iv.1983, Below Dumas Lookout area c. 18 km N of Kununurra on Weaber Plains road, AD; *C.A. Gardner* 7294, 29.v.1944, 70 chain peg N. of Carlton Reach, Ord River, PERTH; *C.A. Gardner* 7343, 5.vi.1944, Ord River, above the gorge, PERTH.

NORTHERN TERRITORY. VICTORIA RIVER: *W.R. Barker* 2757 (see type); *R.A. Perry* 2084, 6.vi.1949, 47 miles S.W. of Birrimbah Outstation, AD, BRI (2 sheets), CANB, NT, PERTH; *R.A. Perry* 2277, 27.vi.1949, 42 m. W. Wavehill Police Station, BRI, CANB (2 sheets), CANB, NT, NSW. DARWIN AND GULF: *D.H. Benson* 1005, 21.vii.1974, Stuart Hwy. between Daly Waters and Larrimah, NSW; *Prof. W. Baldwin Spencer* s.n., vii-viii.1911, Roper River, NSW148589. BARKLY TABLELAND: *P.K. Latz* 9326, 17.vii.1982, 18°05'S, 133°59'E, Junction Stockroute Reserve, AD.

STRIGA Lour.

S. squamigera W.R. Barker, sp. nov.

Affinis *S. orobanchoidi* Africae Indiaeque foliis squamiformibus in basi caulium, sed differt corolla parvior et bracteis foliisque caulis superi linearibus; a speciebus Australiensibus Malesianis differt foliis inferis squamiformibus et habitu multicauli.

Holotypus: *J.R. Clarkson* 6556, 2.vi.1986. Western Australia, Kimberley District; Barred Creek north of Broome. Travertine outcrop north of the creek mouth (17°40'S 122°11'E). Windswept rugged limestone rock outcrop. An erect herb. Flowers pink, tips of K [calyx?]-lobes dark wine. Material in spirit collection. Only a few plants seen usually in the shelter of rocks. Many plants fasciated. AD98702359. *Isotypi*: BRI, PERTH.

?Annual herb 10-30 cm tall, with several stems, rarely 1, arising from the base, the stems simple or branched in upper nodes, erect; indumentum absent from the basal nodes, densely hirsute-scabrous, the hairs eglandular, 0.2-0.5 mm long, spreading on the branches and the upper leaves, tending to antrorse on the bracts, bracteoles and calyx. *Leaves* opposite, sessile, scale-like over much of the stem, broadly triangular, c. 2 mm long, obtuse, narrow ovate-linear to linear at the upper few nodes, 0.5-1.8 x 0.1-0.25 cm, entire, bluntly acute. *Inflorescences* spikes 7-18 or more cm long, simple, consisting of c. 20-50 flowers, opposite at the basal few nodes, mostly alternate; bracts like upper leaves, longer than the calyx at the base, shorter higher up; bracteoles 2, opposite, at the apex of the pedicel, ovate-linear, $\frac{2}{3}$ - $\frac{7}{8}$ the length of the calyx; pedicels 0.8-1.2 mm. *Calyx* tubular, 4.2-5.5 mm long; lobes c. $\frac{1}{2}$ - $\frac{2}{5}$ as long as the calyx, narrow triangular, with wine-red acute apices. *Corolla* pink to mauve, 8-8.5 mm long along the upper side, eglandular and glandular pubescent externally, the mouth tomentose; upper lip recurved, \pm truncate; lower lip 2-3 times as long, 2.5-3 mm long, the lobes obuse to truncate. *Capsule* included in the persistent calyx, ellipsoid-oblong, 4-5 x 2.5 mm long; seeds ellipsoid-oblong to obovoid, sometimes broadly so, 0.25-0.4 x 0.15-0.25 mm, dark brown, twisted, finely longitudinally ribbed.

In his précis of the genus *Striga* Bentham (1835, 1846) grouped the species on the presence or absence of scale-like leaves. This species shares with *S. orobanchoides* Benth. of Africa and India the presence of scale leaves. It differs from this species by its smaller corollas and the presence of linear upper leaves and bracts. The other Australian species (Bentham l.c.; 1869) and those from the Malesian region (Backer & Bakhuizen van den Brink 1965; Miquel 1856; Pennell 1943) differ in their single stems (branched above ground level), and the absence of scale leaves.

Distribution & ecology

Known only from a few scattered localities in northern subtropical Western Australia and Northern Territory, *S. squamigera* is recorded once from woodland on yellow sandy slope, twice from rocky sites, and once from gravelly red sand.

Flowers and fruits: recorded from late April to early June.

Notes

S. squamigera is apparently allied to *S. orobanchoides* of Africa and India by the presence of scale-like leaves which in this species are confined to the basal parts of the stems. It differs from it by its smaller corolla and the linear upper stem leaves and bracts. From the Australian and Malesian species it differs by the scale leaves and its multistemmed habit.

The adjectival epithet derives from the Latin *squama*, scale and *-gerus*, bearing, alluding to the distinctive lower leaves of this species.

Specimens examined

WESTERN AUSTRALIA. DAMPIER: J.R. Clarkson 6556 (see type). GARDNER: R.M. Barker 280, 24.iv.1983, Pack Saddle Plain, at the end of the road, 23.1 km from Kununurra, AD. HALL: T.E.H. Aplin et al. 1362, 25.iv.1985, ca. 200 km N of Halls Creek on road to Kununurra (16°45'S 128°18'E), PERTH.

NORTHERN TERRITORY. BARKLY TABLELANDS: R.M. Barker 193, 20.iv.1983, 11.4 km N of Elliot on Stuart Highway, AD; T.S. Henshall 993, 30.v.1975, Newcastle Waters Stn., AD. LOCALITY DOUBTFUL: Anon. (*Herb. R. Tate*), s. dat., Near Mt Sonder [of Central Australia, replaced by Tate after ruling out Mt Saunders, in Arnhem Land], AD97014238.

Acknowledgments

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NEW SPECIES, NEW COMBINATIONS AND OTHER NAME CHANGES IN *HAKEA* (PROTEACEAE)

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Abstract

Six new taxa of *Hakea* are described from the south-west region of Western Australia; these are *H. psilorrhyncha* and *H. obliqua* ssp. *parviflora*, *H. pendens*, *H. newbeyana*, *H. bicornata* and *H. horrida*. The new combinations made here are *H. teretifolia* ssp. *hirsuta* (Endl.) R.M.Barker, *H. pandanica* ssp. *crassifolia* (Meissn.) R.M.Barker, *H. spathulata* (Benth.) R.M.Barker, and *H. longiflora* (Benth.) R.M.Barker. *H. drupacea* (Gaertn.f.) Roemer & Schultes and *H. denticulata* R. Br. are earlier names which must replace *H. suaveolens* R. Br. and *H. rubriflora* Lamont respectively, while *H. lasiocarpa* R. Br. replaces *H. dolichostyla* Diels. *H. brownii* Meissn. is a distinct species separate from *H. baxteri*, while *H. roei* Benth. is a synonym of *H. pandanica* ssp. *crassifolia*.

Introduction

The following new species, new combinations and name changes in *Hakea* arose from a joint revision of the genus undertaken by Dr W.R. Barker, Dr L. Haegi and the author of this paper. While a primary aim of the project was to prepare a treatment of *Hakea* for the Flora of Australia project, a full revision is planned. The restrictions on length of descriptions within the *Flora of Australia* has led to the new species being described here together with a discussion of their relationships. New combinations have been made and justified here and the reasons for changes in the names of some familiar species are also discussed.

The new species and name changes discussed here relate only to that part of *Hakea* which was the author's responsibility and there are still about 12 new species to be described by Drs Barker and Haegi. Using Bentham's 1870 classification in *Flora Australiensis* the genus was subdivided such that Dr Haegi had responsibility for all of sect. *Conogynoides*, excluding only *H. varia* and related species (species numbers 83-85, series *Enerves*). Dr Barker took responsibility for sect. *Grevilleoides*. Sect. *Hakea* was shared between Dr Barker and the author, Dr Barker tending to cover eastern Australian species while the author mostly covered Western Australian species. Sect. *Manglesioides* and the *H. varia* group were also treated by the author.

NEW SPECIES

Two new taxa within the *H. obliqua* R. Br. complex

Within what has previously been known as *H. obliqua* in Western Australia there are two distinct species, one from the sand plain heaths of the Esperance region and the other from the heaths north of Perth. As the name *H. obliqua* (also known as *H. brooksiana* [brookeana] F. Muell., see Blackall & Grieve 1988) applies to the species from the Esperance region, the northern species is here described as new. This species, *H. psilorrhyncha*, has a longer pistil, longer anthers and longer pedicel and perianth than *H. obliqua* (Table 1). In fresh material it also has a very distinctive pollen presenter (Fig. 1), being very swollen behind the face which contains the stigma and presents the pollen; in dried specimens this pollen presenter collapses but it can still be distinguished from that of *H. obliqua* by its different point of attachment to the style (Fig. 2). and its length (Table 1). There is also a difference between the two species in fruit and seed characters. The fruit of *H. obliqua* (Fig. 2) has a small apical beak with corky outgrowths over most of the fruit body while that of *H. psilorrhyncha* has a longer, smooth and tapering beak in contrast to the corky outgrowths



Fig. 1. Flowering specimen of *H. psilorrhyncha* R.M. Barker showing the distinctive pollen presenter.

The new species is known to be non-lignotuberous as it is killed by fire (George 1984) but *H. obliqua* has still to be investigated for this character.

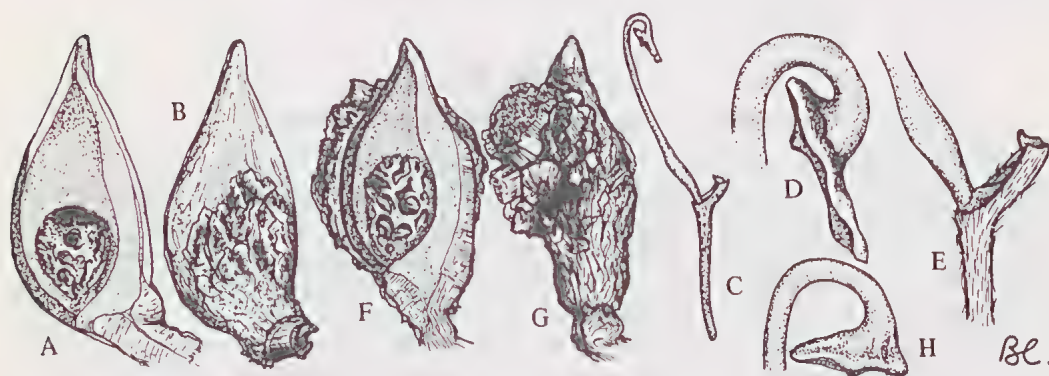


Fig. 2. Comparison of *H. obliqua* R. Br. and *H. psilorrhyncha* R.M. Barker. A-E, *H. psilorrhyncha*. A and B, inside and outside of fruit, $\times 1$; C, flower, tepals removed, $\times 2$; D, pollen presenter, $\times 12$; E, gland, $\times 5$; (all Wilson 3878). F-H, *H. obliqua*. F and G, inside and outside of fruit, $\times 1$ (cult. Adelaide Bot. Garden); H, pollen presenter, $\times 12$ (Aplin 4217).

at the base of the fruit body. While it is not known for certain, the two species may also differ in the presence and absence of a lignotuber.

Overlapping in distribution with both of these species (Fig. 3) is a new taxon which is here treated as a new subspecies of *H. obliqua*, although it is possible that field work may reveal further characters to justify distinguishing it as a new species. For the present only floral characters can be used to separate it from typical *H. obliqua* ssp. *obliqua*. A comparison of these characters, which include pedicel and perianth length, is given in Table 1. The new subspecies has been named ssp. *parviflora* because of the smaller flower size than the typical subspecies.

It may be that the taxon occupies a different ecological niche to that of *H. obliqua* and *H. psilorrhyncha*, both of which occur in sand heaths in their respective areas. Ecological annotations on specimens refer to it as being occasional in heath to 1 m together with *Petrophile ericifolia*, *Melaleuca pungens* and *Calytrix leschenaultii*, in yellow sand over laterite, to *Banksia* woodland, to sand with *Actinostrobos arenarius*, to *Melaleuca acuminata* and *Thryptomene prolifera* heaths in yellow sandy loam and to open dwarf scrub with low heath and sedges on white sand.

Another species within the *H. obliqua* complex, *H. polyanthema* Diels, occurs in the same area as *H. psilorrhyncha* and *H. obliqua* ssp. *parviflora* but it has much smaller flowers (Table 1) and is easily distinguished by the contrasting white hairs on the claw and rust-brown hairs

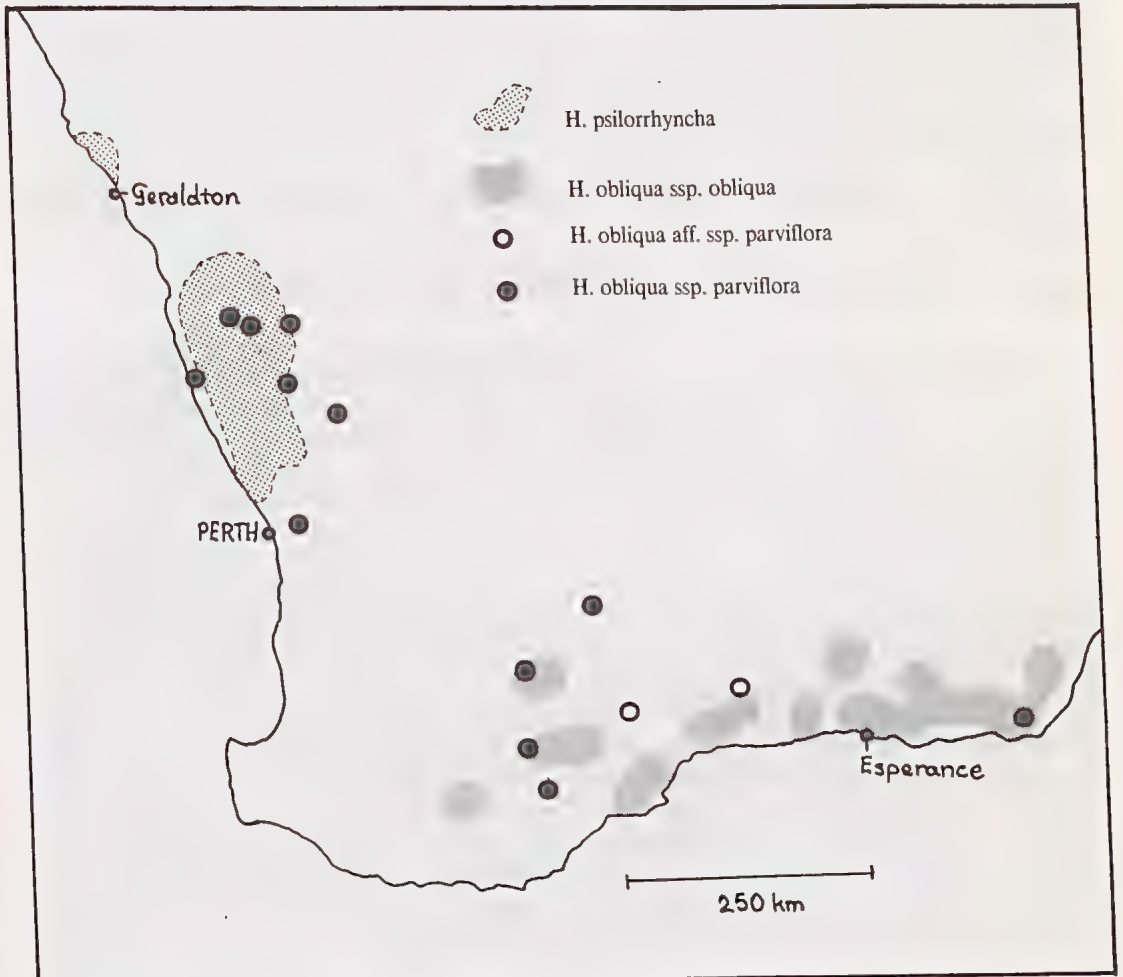


Fig. 3. Distribution of *H. psilorrhyncha* R.M. Barker, *H. obliqua* R. Br. ssp. *obliqua* and *H. obliqua* R. Br. ssp. *parviflora* R.M. Barker.

on the limb, while *H. psilorrhyncha* and *H. obliqua* ssp. *parviflora* have hairs the same colour throughout the perianth. If flowers are lacking then *H. psilorrhyncha* and *H. polyanthema* can be distinguished by the width of their leaves, 1.1-2.5 mm broad in *H. psilorrhyncha* and 0.8-1.2 mm broad in *H. polyanthema*, or if fruits are present, by the lack of a long smooth beak and the lesser development of corky tissue in *H. polyanthema*.

Table 1: Comparative length measurements of the pedicel, perianth, pistil and anthers of the species of the *H. obliqua* complex.

	pedicel length	perianth length	pistil length	anther length
<i>H. obliqua</i> ssp. <i>obliqua</i>	3.5-6 mm	5.5-7.5 mm	6.5-10 mm	0.5-0.6 mm
<i>H. obliqua</i> ssp. <i>parviflora</i>	1.5-2.5 mm	4.5-5.5 mm	6-6.5 mm	0.5 mm
<i>H. polyanthema</i>	1.5-2.5 mm	3.5-4.2 mm	5 mm	0.4 mm
<i>H. psilorrhyncha</i>	6-8 mm	6.5-9 mm	10-11 mm	1 mm

Hakea psilorrhyncha R.M. Barker, sp. nov.

H. obliqua auct. non R. Br.: A.S. George, Introd. Proteaceae W. Austral. 68, p. 96, 97 (1984); Grieve in Blackall & Grieve, How to know W.A. Wildflowers, Pt 1, 2nd edn, p. 123 (1988), p.p. (excl. specimens from Ravensthorpe and Esperance).

Species nova prope *H. obliquam* sed differt pistillo, pedicello, perianthio et antheribus longioribus, rostro fructus laevi, et ala seminis corpus non cingenti.

Holotype: P.G. Wilson 3878, 1.xi.1965, c. 25 km NW of Badgingarra (PERTH); isotypes: AD, 1 duplicate to be distributed.

Illustration: A.S. George, Introd. Proteaceae W. Austral. 68, pl. 96, 97 (1984).

Erect shrubs with smooth grey bark, 1-4 m tall, non-lignotuberous; branchlets and young leaves densely appressed-sericeous, hairs ferruginous initially, becoming white, persistent until flowering on branchlets, quickly glabrescent on leaves. *Leaves* simple, terete, rigid, \pm straight, obliquely or widely spreading with respect to branch, 2-5 (-9.6) cm long, 1.5-2.5 mm broad, grooved basally on lower side at base or not; mucro 2.5-3.5 mm long, porrect. *Inflorescence* an axillary umbel; involucre 5-5.5 mm long, outer bracts appressed-pubescent in upper half, mid-brown, yellow or paler in lower half. *Flowers* 6 or 8; rhachis developing directly from leaf axil, simple, obscure, with white and rust-brown hairs; pedicel 6-8 mm long, densely appressed-sericeous, hairs cream-white or golden, extending onto perianth; torus oblique with gland on upper side; perianth dilated in basal half, recurved apically, 6.5-9 mm long in late bud; anthers 1 mm long, dark-coloured; pollen red-brown; gland large, U-shaped, 1.6-1.7 mm long, 0.2 mm high; pistil 10-11 mm long; style recurved apically and remaining so, red; disc of pollen presenter obliquely inserted on style and not centred, parallel to main axis of style, white, 1.5-1.8 mm long; stigma tiny, impressed in face of pollen presenter, not centred. *Fruit* on branchlets substantially thicker than others of same age, solitary, 3.5-5 cm long, in lateral view obliquely ovate, 1.5-2.3 cm wide, basally with lines of large stout corky projections decurrent on one side with smooth, gradually attenuate beak, dehiscing fully down one side, almost fully down the other; seed scar marginal, oblique. *Seed* obliquely ovate, 24-28 mm long, 12-15 mm broad; seed-body 10-13 mm long, black, with slender dagger-like projections or unevenly dissected, white about margin; wing completely encircling seed-body but body not centred, mid- to dark-brown.

Distribution & ecology

Found in sand or clay in mallee or open heath between Geraldton and Perth, W.A.

Flowering: September to October.

Note: The name 'psilorrhyncha' is derived from two Greek words *psilos*, smooth, and *rhynchos*, snout, referring to the the beak of the fruit.

Specimens examined

WESTERN AUSTRALIA: *Anon.* (Herb. A. Morrison) s.n., s. dat., without locality (E s.n.); *T.E.H. Aplin & R. Coveny* 3122, 2.ix.1970, 65 miles (104.6 km) NNW Gingin (NSW, PERTH); *P. Armstrong* 80, 16.ix.1979, 10 km S of Moore River (PERTH); *B. Barnsley* 866, 24.i.1979, 2 km W of Brand H/way along Green Head Rd (CBG); *E.M. Bennett* 1368, 30.ix.1966, 5 miles from Coorow to Eneabba (PERTH); *J. Benyon* s.n., 17.ix.1981, Between Morawa and Eneabba (CBG); *W.E. Blackall* 4893, 24.ix.1940, Three Springs (PERTH); *W.E. Blackall* 4893, ix.1940, W of Three Springs (PERTH); *H.F. & M. Broadbent* 1842, 15.x.1953, 15 m NW of Moora (BM); *E.M. Canning* s.n., 22.ix.1968, 4.3 miles from Arrowsmith River towards Three Springs on Dongara-Three Springs rd (CBG 37457); *E.M. Canning* s.n., 23.ix.1968, 13.5 miles from Three Springs towards Eneabba (CBG 30490); *R. Filson* 8430, 31.viii.1966, New Geraldton road, 30 miles NNW of Regans Ford (MEL); *C.A. Gardner* 1930, 22.ix.1926, Watheroo (PERTH); *C.A. Gardner* s.n., 1948, Near Coorow (PERTH s.n.); *C.A. Gardner* s.n., 27.ix.1960, Gunyidi (PERTH s.n.); *C.A. Gardner & W.E. Blackall* s.n., ix.1926, Northampton (PERTH s.n.); *C.H. Gittins* 1668, ix.1967, 14 miles W of Coorow (BRI, NSW, PERTH); *W. Greuter* 17910, 9.viii.1981, Badgingarra road house on Great Northern H/way (ca 200 km N of Perth) (MEL); *E.A. Griffin* 958, 3.viii.1977, 7 km S of Eneabba (PERTH); *T.J. Hawkeswood* s.n., 17.iii.1979, 5 km S of Cataby (Dandaragan West) (PERTH); *R.J. Hnatiuk* 760080, 3.viii.1976, 15 km N of Cataby Creek (PERTH); *N. Hoyle* 89, 9.ix.1985, Brand H/way, 15.5 km N from intersection of Coorow-Greenhead Rd and Brand H/way (PERTH); *A. Morrison* s.n., 14.xi.1906, Mogumber, Moore River (E); *A.F. Oldfield* 366, s. dat., Sand plain, near the Culjong? (MEL 675730); *M.E. Phillips* s.n., 23.ix.1968, 1 mile onto Nebru Rd, ca 5 mile from Three Springs (CBG 27464); *M.E. Phillips* s.n., 28.ix.1968, 27 miles from Gingin towards Regan's Ford (CBG 28086); *R.W. Purdie* 5076 & *A.S. George* s.n., 18.ix.1983, ca 16.5 km from Mogumber along Moore River rd (CBG); *R.D. Royce* 9609, 5.x.1971, Watheroo National Park, W of Watheroo (PERTH); *P.S. Short* 2411 & *L. Haegi* s.n., 14.xi.1983, 27 km by road SW of Three Springs on Eneabba Rd (AD, MEL, PERTH); *N.H. Speck* [928], 20.ix.1952, W of Moora (CANB191346); *H. Steedman* s.n., 1.ii.1935, Mogumber (PERTH); *D.J. Whibley* 4812, 1.xi.1974, c. 8 km W of New Badginarra (AD); *P.G. Wilson* 3878, 1.xi.1965, ca 25 km NW of Badgingarra, which is ca 175 km N of Perth (PERTH 2 duplicates).

CULTIVATED: *T. Reichstein* 2008, 18.xii.1978, Adelaide Botanic Garden (Border M6-N6) (AD [dupl.]).

H. obliqua ssp. *parviflora* R.M. Barker, ssp. nov.

Subspecies nova prope *H. obliquam* ssp. *obliquam* sed differt parvioribus (4.5-5.5 mm longis) floribus et pedicelis, foliis et fructibus angustioribus et fructibus vix subere tegenti.

Holotype: *E.C. Nelson* 17237, 28.viii.1973, 20 km west of Coorow (PERTH); isotype: CANB.

Compact shrub, 1-1.5 m tall. *Leaves* 2.5-6 cm long, 1.2-1.5 mm broad, densely appressed-pubescent when young, hairs ferruginous, quickly glabrescent. *Inflorescence* axillary umbel of 2-6 paired flowers, always with developing ferruginous vegetative shoot at base of very short rachis; rachis appressed sericeous, hairs white; pedicel 1.5-2.5 mm long, densely appressed-sericeous, hairs white or cream-yellow, extending onto perianth; perianth 4.5-5.5 mm long; anthers 0.5 mm long; pistil 6-6.5 mm long; style recurved apically so that disc of pollen presenter is parallel with it; stigma impressed in disc, not centred. *Fruit* 2.5-3.5 cm long, smooth with some corky tubercles, in lateral view obliquely ovate, 1.3 cm wide.

Distribution & ecology

Found on the plains between Geraldton and Perth and further to the east in the Lake Grace area. Found in low heaths in sand with such species as *Petrophile ericifolia*, *Melaleuca pungens* and *Calytrix leschenaultii*, with *Melaleuca acuminata* and *Thryptomene prolifera*, with *Actinostrobos arenarius* or within *Banksia* woodland.

Flowering: August to September.

Specimens examined:

WESTERN AUSTRALIA: *Anon.* (Herb. F. Mueller) s.n., x.1867, Scrubs N of Stirling Range (MEL 108013); *W.R. Barker* 2446, 16.ix.1977, ca 20 km by road NNE of Borden on main road to Lake Grace (AD); *J.S. Beard* 7847, 17.ix.1976, 3 miles S of Namban River (NSW, PERTH); *W.E. Blackall* 2583, 13.ix.1932, Between Watheroo & Coorow (PERTH); *J.M. Brown* 88, 7.ix.1984, Dragon Rock Nature Reserve, 36238, 75 km E of Kulin (PERTH); *S. Chambers* 82, 5.ix.1966, Strathmore rd, S of Jurien Bay (PERTH); *J. Drummond* 10, s. dat., without locality (K); *J. Drummond* 43, s. dat., Swan River (K); *J. Drummond* 330, 1843, Swan River (BM, G, K, OXF); *J. Drummond* 33 [?0], s. dat., without locality (MEL 108011); *J. Drummond* II, 330, s. dat., without locality (MEL 108012); *J. Drummond* [& L. Preiss] 92, s. dat., without locality (MEL 108015); *J. Gilbert* s.n., 1848, Swan River (BM); *J.W. Green* 4416, 27.ix.1975, 19.2 miles (30.9 km) W of Lake Grace on rd to Dumbleyung (PERTH); *K.F. Kenneally* 5822, 8.ix.1976, Wongan Hills, 194 km NE of Perth (PERTH, 1 duplicate); *?Maxwell* s.n., s. dat., Inland, Cape Paisley (NSW 179878); *E. McCruin* 47, 5.ix.1957, 162 m[ile] p[ost] Geraldton H/way (PERTH); *E.C. Nelson* ANU 17237, 28.viii.1973, 20 km W of Coorow (CANB, PERTH); *J.H. Willis* s.n., 10.ix.1963, ca 6 miles (10 km) SE of Borden (MEL 675743).

Specimens aff. *H. obliqua* ssp. *parviflora* but lacking flowers.

WESTERN AUSTRALIA: *M.A. Burgman & C. Layman* MAB2890, 12.xii.1983, 22.75 km SE of Muckinwobert Rock, 7.2 km SW of Rawlinson Rd on West Point Rd (PERTH); *A.S. George* 16760, 2.viii.1986, 4.5 km N of Rabbit Proof Fence, North Rd from junction with Matthew Rd, N of Cunderdin (PERTH); *N.L. McKenzie* 525, i.1972, Nyabing-Pingrup (PERTH); *N.L. McKenzie* 614, i.1972, Nyabing-Pingrup (PERTH); *B.G. Muir* 483 (4.7), 2.vi.1977, Marchagee Reserve, 23601, 10 km N Marchagee, 9 km S Coorow (PERTH).

CULTIVATED: SOUTH AUSTRALIA: *W.R. Barker* 5514, 15.ix.1987, On dune-top by Jeff Barr's farmhouse ('Woodlands'); on 'old road' to Blyth, ca. 18 km by road N of Balaklava (AD).

A new species in the *H. verrucosa* F. Muell. group

This species has been known for some time in cultivation, although its occurrence in the wild appears to be restricted. It is unique in the genus and very distinctive by its pendent flowers, hence the name *H. pendens*. The most closely related species are apparently *H. verrucosa* F. Muell. of Western Australia, *H. purpurea* Hook. of Queensland, *H. bakeriana* F. Muell. & Maiden of New South Wales and possibly *H. rhombales* F. Muell. of Northern Territory, South Australia and Western Australia. With each of these species *H. pendens* shares the characteristics of large pink or red flowers (often with a white stage) in which the perianth parts do not split fully into 4, but instead only split along the dorsal suture to release the style. It is possible that this characteristic may not truly indicate close relationships but merely be a pollination syndrome, the most likely pollinator being birds. In the case of *H. rhombales*, which differs from this group of species in a number of other respects, the flowers are unpleasantly scented, a characteristic not usually associated with bird pollination.

H. pendens is also distinct in this group of species by its conical pollen presenter, the rest of the species having oblique or lateral pollen presenters in which the cone is absent or obscure. It also possesses shorter pistils (14-15.5 mm long) while the rest of the species have pistils in excess of 20 mm long. The fruit of *H. pendens* is almost indistinguishable from that of *H. purpurea* but in the absence of flowers and distributional data these two taxa should still be separable. *H. purpurea* has simple or compound terete leaves, while *H. pendens* only ever has simple terete leaves; the simple terete leaves of *H. purpurea* are usually longer (2.5-9.5 mm long) than those of *H. pendens* (2-4 mm long), and always narrower (0.8-1.5 mm wide compared with 1.9-2 mm wide). In fruiting specimens *H. pendens* is easily distinguished from *H. verrucosa* by the lack of horns on the fruit, from *H. rhombales* by the lack of crested ridges along the suture of the fruit and from *H. bakeriana* by the smaller fruits lacking a verrucose surface.

Hakea pendens R.M. Barker, sp. nov.

?*Hakea* sp. 5 (Parker Range), Briggs & Leigh, Rare or threatened Austral. Pl, 123 (1988).

Species nova prope *H. verrucosam* et *H. purpuream* sed differt inflorescentibus pendentibus, donatore pollinis conico et floribus parvioribus.

Holotype: *P. Luscombe s.n.*, 1.ix.1978, Near Marvel Loch (PERTH).

Shrub 1.9-2.7 m tall, 2.5-3.1 m wide; branchlets densely appressed-sericeous, persistent at least until flowering, becoming glaucous. *Leaves* simple, terete, crowded, straight, rigid, 2-4 cm long, 1.9-2 mm broad, ungrooved, densely appressed-sericeous, hairs ferruginous, quickly glabrescent, not glaucous; mucro 1-2.5 mm long. *Inflorescence* axillary, umbelliform raceme, at apex of old branched rachises, pendent. *Flowers* 6 or 8; rhachis knob-like, hirsute, hairs rust-coloured and white; pedicel cream-white, pink distally, 6.5-7.5 mm long, glabrous, glaucous; torus oblique with gland on lower side; perianth c. 7-8 mm long, recurved apically, glabrous, light pink at base, darker above, limb white inside and out, splitting fully down one side only, eventually splitting into 2 pairs; anthers 0.7 mm long; gland U-shaped, 0.6-0.7 mm long, 0.1-0.2 mm high; pistil 14-15.5 mm long; style recurved apically, ?eventually porrect; pollen presenter conical, 0.7-1 mm high. *Fruits* 1-4 on elongated woody rhachis, 2.8-3.1 cm long, obliquely obovate in lateral view, 1.4-1.8 cm wide, black-pusticulate, dehiscing fully down both sides; beak transverse and substantially decurrent down one side, surface similar to rest of fruit body; horns obscure; apiculum c. 2 mm long; seed scar marginal, oblique. *Seed* obliquely elliptic, 17 mm long, 7 mm broad, rounded proximally, acute distally; seed-body 6.5 mm long, very flattened, rugose-reticulate to almost smooth; wing broadly down one side of seed-body, narrowly down other, black or dark brown, reddish around seed-body.

Distribution & ecology

Found in the Parker Range area of Western Australia in ironstone or in stony ridges in stony loam of mixed scrub.

Flowering: September.

Note

A specimen of this plant cultivated at Willunga Botanic Gardens (South Australia) has leaves which are not as crowded as those in herbarium collections and also has occasional leaves which are compound terete; the compound terete leaves are bi- or tri-partite apically. At the time of release of the pollen presenter from the perianth flowers in this specimen are predominantly white with a pale pink ring at the base of the perianth. The pink coloration of the claw develops after this stage.

Specimens examined

WESTERN AUSTRALIA: *J.S. Beard* 5934, 18.vii.1970, Parker Range, on summit ridge (KINGS PARK); *Kennecott Explorations s.n.*, 19.v.1969, reserve SW of Southern Cross (PERTH); *P. Luscombe s.n.*, 1.ix.1978, near Marvel Loch (PERTH); *K. Newbey* 9218, 14.ix.1981, Mt Caudan, Parker Range, ca 48 km SE of Southern Cross (PERTH).

A new species within the *H. varia* R. Br. complex

Within this group, which is defined by its terminal and axillary inflorescences in which the flowers are glabrous and curved in bud and by the conical pollen presenter and horned fruits, I have recognized 7 species. Only one of these is new, but it already had a manuscript name provided by Charles Gardner and I have chosen to retain his name, *H. horrida*, as it seems eminently suitable for such an unapproachable plant. Herbarium annotations show that this new species has frequently been confused with *H. dolichostyla* Diels (see below).

H. horrida is distinctive in the *H. varia* complex as well as in the genus *Hakea* by its leaf shape. It is the only species to have leaves which are deeply pinnatisect. It is also one of the few species in the genus to lack a gland at the base of the ovary, a characteristic it shares with *H. ilicifolia* R. Br., also in the *H. varia* complex. These two species also have a short pubescence on the surface of the ovary and fruit. They differ in leaf shape with *H. ilicifolia* having the typical holly-shaped leaves of the specific epithet.

Hakea horrida C. Gardner ex R.M. Barker, sp. nov.

Species nova prope *H. variam* sed differt foliis pinnatisectis, ovariis et fructibus pubescentibus, et floribus sine glande.

Holotype: *P. Wilson* 3249, 16.ix.1964, 32 km east of Lake King township (AD); **isotypes** (n.v.): B, L, PERTH, UC.

Spreading or dense, intricately branched, rigid shrubs, 0.6-2 m tall, 0.7-2 diameter; branchlets red, moderately appressed-pubescent, glaucous with age. *Leaves* rigid, grooved on upper side, densely appressed-pubescent, quickly glabrescent, 4-9.5 cm long overall, subpinnatisect above 1-2.5 cm long 'petiole', divided di- or trichotomously into 5-11 (-14) flattened segments 0.6-2.5 cm long, 1-2.5 mm broad; mucro 2-3.5 mm long, porrect. *Inflorescence* axillary or terminal umbelliform raceme; involucre 6.5-8 mm long, bracts densely woolly-tomentose, hairs white on lower bracts, ferruginous on upper bracts. *Flowers* 18-22, paired; rhachis 2.5-4 mm long, densely villous with short white hairs; pedicel 3-6 mm long, glabrous apart from sparse hairs at apex similar to those on ovary; torus oblique, gland absent; perianth 2-4 mm long, white to yellow, ?not fragrant, splitting into 4 free segments, claw separating before limb, recurved behind limb, limb glabrous or with sparse hairs similar to those on ovary, densely papillose externally; anthers 0.5-0.6 mm long; pistil 5.5-8 mm long; ovary lacking gynophore, pubescent with short ?glandular hairs; style porrect to recurved; pollen presenter conical, 0.8-0.9 mm high. *Fruit* obliquely ovate in lateral view, 1.5-2 cm long, 1-1.5 cm wide, black-pusticulate, shortly pubescent; horns 3.5-4.5 mm long, slightly incurved; seed scar filling whole valve apically, marginally at base. *Seed* obliquely obovate, 9-13 mm long, 5-6.5 mm broad; seed-body 4-5.5 mm long, unevenly dissected; wing broadly down one side of seed-body, narrowly down other or encircling seed-body, grey.

Distribution & ecology

Found in drier areas of south west Western Australia in the Ongerup to Newdegate area. Records include from gravel loam, sand, sandy loam with lateritic gravel or pebbles, in scrub, closed heath, open *Eucalyptus eremophila* mallee or *Casuarina acutivalvis* shrubland. It flowers from August to October.

Note

A gland was not found on any herbarium sheets but cultivated *H. horrida* at Wittunga Botanic Garden was found to have a small white upright gland present in most flowers. Some of the flowers also had pale pink pollen presenters. The provenance of this material needs investigation. It is possible that it is the product of hybridization with another species, possibly *H. varia* R. Br. which sometimes has red pollen presenters or possibly species from sect. *Manglesioides* which is closely related to the *H. varia* complex. *H. lissocarpa* R. Br. and *H. suaveolens* R. Br. (= *H. drupacea*, see below) from this group both produce pink pollen which gives the pollen presenter a pink appearance.

Specimens examined

WESTERN AUSTRALIA: *D.J. Backshall* 130, 15.iv.1984, Dunn Rock Nature Reserve, 30 km SW of Lake King (PERTH); *W.E. Blackall* 3089, 23.ix.1933, Between Pingrup & Lake Magenta (PERTH); *C.A. Gardner* 13987, 27.viii.1962, Newdegate (PERTH); *R. Hnatiuk* 761316, 22.ix.1976, 20 km W of Newdegate (PERTH); *F.W. Humphreys* 143, 13.x.1966, E of Lake King (PERTH); *F. Lullfitz* 3678, 27.viii.1964, 1 mile W of Newdegate (PERTH); *D. Monk* 296, 7.viii.1978, Frank Hann National Park (PERTH); *B.G. Muir* 438 (3.1), 1.vii.1976, West Bendering Reserve, 25681, ca 6.5 km E Bendering siding, ca 22 km NNE Kondinin (PERTH); *K. Newbey* 390, 26.viii.1962, 10 miles E of Ongerup (PERTH); *K. Newbey* 2639, 7.ix.1967, 13 miles W of Lake King (PERTH); *K. Newbey* 6490, 12.xi.1979, 2 km NW of 90 Mile Tank, Norseman-Lake King Road (PERTH); *R.W. Purdie* 5347, 26.ix.1983, 32 km E of Lake Grace along road to Newdegate (CBG); *R.D. Royce* 6682, 14.ix.1961, 6 miles S of Lake Grace (PERTH, 1 duplicate); *A. Salkin* 40/2A, 7.ix.1974, Lake King (CBG); *P.G. Wilson* 3249, 16.ix.1964, Coolgardie District; 32 km E of Lake King township, Lake King, ca 380 km ESE of Perth (AD); *P.G. Wilson* 5758, 11.x.1966, 16 km W of Lake King township (PERTH); *J.W. Wrigley* 5519, 6.xi.1968, 9 miles from Lake King, toward Newdegate (CBG, NSW).

CULTIVATED: *W.R. Barker* 5531, 28.ix.1987, Ken Stuckey's private garden at 'Kandara', ca 3.5 km WSW of Furner which is ca. 20 km direct N of Millicent, in swale ca. 50 metres W of house (AD); *B. Murfet* M2/168, 23.viii.1972, K. Stuckey, Furner, South Australia (CBG 45315); *J. Kitcher* 5747, 26.viii.1969, Kings Park Botanic Gardens (PERTH).

Two new species in the *H. strumosa* Meissn. group of species

This group of species is defined by terete leaves, axillary, cauliflorous or terminal inflorescences with the rachis forming on rachises from the previous year, the rachis short and hirsute and supporting 4-12 paired flowers, the perianth glabrous or sparingly hirsute, usually curved in bud and splitting into 4 free parts. The pollen presenter varies from oblique to almost lateral to subporrect, while the gland is always a small flap at the front of the torus. The fruit is always woody and horned and retained on the bush on a thickened rachis. Species included in this group are *H. cycloptera* R. Br. and *H. vittata* R. Br. of South Australia, and *H. strumosa* Meissn., *H. commutata* F. Muell. and *H. circumalata* Meissn. of Western Australia, together with two new Western Australian species described here.

The first of these new species, *H. newbeyana*, has in the past been confused with *H. oldfieldii* Benth. This confusion dates back to the first description of *H. oldfieldii* when Bentham (1870) based his description on two collections, one by Oldfield and one by Roe. The Oldfield collection corresponds with the species presently known as *H. oldfieldii*, while the Roe collection corresponds with the new species. Lectotypification will ensure that present usage of the name *H. oldfieldii* is retained. The new species, *H. newbeyana*, agrees with *H. oldfieldii* by having straight buds and a conical pollen presenter but differs by possessing an undulate disc at the base of the conical pollen presenter (the undulate disc lacking in *H. oldfieldii*), by the much larger fruits (2.5-3.5 cm long vs 1.6-2.3 cm long), by the young branchlets and leaves being ferruginous rather than glabrous and by the development of new rachises on the old woody rachises of the previous season as well as arising directly from the leaf axil as in *H. oldfieldii*.

Within the group of species composing the *H. strumosa* group, *H. newbeyana* differs from them all by its straight buds, conical pollen presenter and by its yellow flowers.

Hakea newbeyana R.M. Barker, sp.nov.

?*Hakea* sp. 5 (Parker Range), Briggs & Leigh, Rare or threatened Austral. Pl. 123 (1988).

Species nova prope *H. oldfieldii* et *H. strumosam*, sed ab *H. oldfieldii* differt rhachidibus ramosis et pubescentibus, ramulis foliisque juvenilibus pubescentibus et ab *H. strumosa* gemmis rectis et ala seminis corpus non cingente et donatore pollinis conico et floribus flavis.

Holotype: *L. Haegi* 1202, 5.x.1976, Ca. 21 km NW of Holt Rock P.O. on track to Hyden, Coolgardie District (AD); *isotypes*: HO, NSW, PERTH.

Spreading, rounded, rigid shrubs, 1-3 m tall; branchlets and young leaves densely appressed-sericeous, hairs ferruginous, quickly glabrescent, branchlets becoming glaucous. *Leaves* simple, terete, straight or incurved, 2.5-7.5 cm long, 1-2.2 mm broad, not grooved; mucro porrect, 1-3 mm long. *Inflorescence* usually axillary, more rarely cauliflorous, umbelliform raceme, developing directly from axil or more usually on old woody rachises of previous seasons; involucre 4-4.5 mm long; bracts ciliate, glabrous, not glaucous. *Flowers* 6-8, paired; rhachis 1-4 mm long, densely hirsute, hairs white or more rarely rust-brown; pedicel 2.5-3.5 mm long, glabrous, not glaucous; torus oblique with gland on lower side; perianth 2-3 mm long, yellow, glabrous, not recurved behind limb, splitting into 4 free segments; anthers 0.3-0.4 mm long; gland a curved flap 0.1 mm high; pistil 3.8-4.5 mm long; style porrect and remaining so; pollen presenter \pm porrect, cone 0.3-0.4 mm high on a basal undulate disc. *Fruit* solitary on short rachis, in lateral view obliquely broadly elliptic or elliptic, 2.5-3.5 cm long, 1.5-2.5 cm wide, smooth, black-pusticulate; beak decurrent down one side of fruit body; apiculum 1-3 mm long; horns often obscure in mature fruits, 1.5-2 mm long. *Seed* obliquely elliptic, 14-20 mm long, 6-11 mm broad; seed-body 8-9 mm

long, slightly rugose-reticulate or smooth and flattened, difficult to distinguish from wing; wing broadly down one side of seed-body, narrowly and partly down other, black.

Distribution & ecology

Found in the Hyden - Newdegate area of Western Australia in sandy loam, in mallee or salmon gum woodland.

Flowering: September to October, rarely as early as June or July.

Note

The species is named after the prolific collector of *Hakea* in Western Australia, the late Ken Newbey.

Specimens examined

WESTERN AUSTRALIA: *D.J. Backshall* 95, 15.iv.1984, Dunn Rock Nature Reserve, 30 km SW of Lake King (PERTH); *J.S. Beard* 5934, 18.vii.1970, Parker Range, on summit ridge (PERTH); *E.M. Canning* 7360, 7.xi.1968, Ca 1 mile from Newdegate, toward Lake Grace (at 248 m.p.) (CBG); *Cronin s.n.*, 1893, Lake Deborah (MEL 1537829); *H. Demarz* 10549, 16.i.1985, Lake Magenta Road (PERTH); *R. Filson* 9359, 10.x.1966, Kumarl to Lake King Road, 74 m W of Kumarl (MEL 34956); *L. Haegi* 1202, 5.x.1976, 21 km NW of Holt Rock PO, on track to Hyden. Holt Rock, ca 160 km SE of Merredin (AD, PERTH); *K. Hill* 646 & *L. Johnson et. al.*, 8.xi.1983, 43.2 km W of Hyden on road to Kendinin (NSW); *F.W. Humphreys* 151, 11.x.1966, East of Hyden (PERTH); *M. Koch* 2201, x.1913, Kukerin (NSW, PERTH); *R.H. Kuchel* 2035, 21.ix.1964, Ca 16 km S of Kulin (Kulin, ca 230 km ESE of Perth) (AD, PERTH); *F. Lullfitz* 3898, 26.xi.1964, 39 miles south of the crossroads, in heavy mallee, Forrestania (PERTH); *N.L. McKenzie* 515, i.1972, Nyabing-Pingrup (PERTH); *K. Newbey* 981, 29.ix.1963, 3 mls north of Nyabing (PERTH); *K. Newbey* 981D, 26.iv.1964, 3 mls north of Nyabing (PERTH, 2 sheets); *K. Newbey* 6181, 3.x.1979, 7 km WSW of Lake Cronin, ca 77 km E of Hyden (PERTH); *A.E. Orchard* 1102, 20.ix.1968, Neridup, ca 3 km NE of Howick Hill, in Location 251 (CANB); *R.W. Purdie* 5350, 26.ix.1983, 32 km E of Lake Grace along rd Newdegate (CBG); *R.A. Saffrey* 326, 7.viii.1968, Gate at RP E of Mt Madden (AD, PERTH); *P.G. Wilson* 5736, 10.x.1966, 72 km E of Lake King on rd to Daniell (PERTH).

CULTIVATED: *J.H. Willis s.n.*, 8.x.1969, Cultivated at Dripstone by Peter Althofer (MEL 672101).

The second new species in the *H. strumosa* group, *H. bicornata*, seems to be most closely related to *H. newbeyana*. Both species differ from the rest of the group by the seed wing not completely encircling the seed-body although it does extend down both sides of the seed-body. Both species also have pedicels and perianths which are glabrous and yellow or cream-white, whereas the rest of the species in the group either have hairs on the pedicel or perianth or have flowers which are not yellow overall. *H. newbeyana* and *H. bicornata* differ from each other predominantly in their fruit structure, that of *H. bicornata* being much smaller than *H. newbeyana* and also possessing a pair of long slender horns in contrast to the often obscure horns in *H. newbeyana*. They possess very similar conical pollen presenters with the cone seated on a wider undulate base. However, whereas in *H. newbeyana* the conical presenter is porrect and the buds and style are straight, in *H. bicornata* it is obliquely or almost laterally inserted and the styles, and hence the buds, are recurved. *H. newbeyana* and *H. bicornata* also differ vegetatively in that the terete leaves of *H. bicornata* are longer than those of *H. newbeyana*.

Hakea bicornata R.M. Barker, sp. nov.

Species nova prope *H. strumosam* et *H. newbeyanam* sed differt ab *H. strumosa* fructibus parvioribus, floribus eburneis et ala seminis corpus non cingente et ab *H. newbeyana* foliis longioribus, donatore pollinis recurvo, et gemmis recurvis, et fructibus parvioribus et cornibus longioribus.

Holotype: *W. Archer* 2605901, 26.v.1990, 10.5 km NW Clyde Hill, 37 km ENE Mt Heywood (AD, duplicates to be distributed).

Multistemmed, much branched shrubs, 1-1.3 m tall, lignotuberos; branchlets densely appressed-pubescent, hairs ferruginous, quickly glabrescent. *Leaves* simple, terete, not grooved,

7-13 cm long, 1.2-1.5 mm broad, densely appressed-sericeous, hairs ferruginous, quickly glabrescent, not glaucous; mucro 1.5-2.5 mm long. *Inflorescence* axillary, umbelliform, developing directly from axil or on woody rachises from the previous season. *Flowers* usually 8, paired; rhachis very short, moderately appressed pubescent, hairs rust-brown; pedicel 3.5-4.5 mm long, glabrous, not glaucous; torus oblique with gland on lower side; perianth c. 2.5 mm long, cream-white, glabrous, recurved behind limb, splitting into 4 free segments; anthers 0.3-0.4 mm long; gland small flap, 0.1 mm high; pistil 4-4.5 mm long; style recurved and remaining so; pollen presenter conical, obliquely inserted, 0.7-0.8 mm long. *Fruit* solitary on short rachis, in lateral view obliquely broadly elliptic or obovate, 1.5-2.2 cm long, 1.2-1.5 cm wide, black-pusticulate on pale grey bark; beak absent; apiculum obscure; horns 5-6 mm long, very narrow, often broken. *Seed* obovate, 11 mm long, 5.5 mm broad; seed-body 3.5 mm long, rugose-reticulate; wing broadly down one side of seed body only, black or dark brown.

Distribution & ecology

A rarely collected species, known from only four collections, from the Cape Arid National Park area in Western Australia. It is found on lateritic clay or clay loam over granite in shrubland and flowers in August.

Note

The specific epithet derives from the Latin *bicornatus*, two-horned, in reference to the conspicuous horns of the fruits of this species.

Specimens examined

WESTERN AUSTRALIA: A.S. George 2079, 6.xii.1960, ca 19 mls SSW of Mt Ragged (PERTH); A.S. George 15853, 7.viii.1980, NW base of Mt Ney (PERTH); P. van der Moezel 493, 14.ix.1984, 10 km E of Scaddan on Scaddan Road.(PERTH); A.E. Orchard 1102, 20.ix.1968, ca 3 km NE of Howick Hill (AD, PERTH).

NEW COMBINATIONS

H. pandanica R. Br. and *H. crassifolia* Meissn.

H. pandanica subsp. *crassifolia* (Meissn.) R.M. Barker, comb. et stat. nov.

Basionym: *Hakea crassifolia* Meissn. in Lehm., Pl. Preiss. 1: 570 (1845). Syntypes: *L. Preiss* 550, 19.xi.1840, In saxosis ad latera callium Konkoberup promontorii Cape Riche (G, HBG, LD, LE, MEL 108123, M, MO, NY p.p., P).

H. pandanica R. Br. has previously been separated at species level from *H. crassifolia* Meissn. on the basis of the surface of the fruit, the former having large tetrahedral corky protuberances, the latter a smoother surface, cracked in a similar manner to drying mud. These two extremes are very distinctive and to some extent supported by distribution with the larger fruit protuberances being produced by plants growing in the more easterly part of the distributional range around Esperance and the smoother fruits from the more westerly locations around Ravensthorpe. However, there are many intermediates and it cannot be justified maintaining these two taxa as species in the absence of any supporting characters. The two taxa have here been reduced to subspecies and as *H. crassifolia* is the later name, it has now become ssp. *crassifolia* of *H. pandanica*.

Intraspecific taxa within *H. teretifolia* (Salisbury) Britten

Hakea teretifolia ssp. *hirsuta* (Endl.) R.M. Barker, comb. & stat. nov.

Basionym: *H. pugioniformis* β *hirsuta* Endl., Gen. Pl. Suppl. 4(2): 85 (1847), based on *H. pugioniformis* β R. Br., Trans. Linn. Soc. 10: 179 (1810). Syntype: R. Brown 381, 1804, Port Dalrymple [BM (Cat. no. 3381) p.p.].

H. teretifolia (Salisbury) Britten of south-eastern Australia can be divided into two subspecies which have in the past been recognised as distinct species or different varieties of *H. teretifolia*. There are some specimens which are difficult to allocate to either taxon, hence the rank of subspecies, a rank which is being consistently allocated and the only one recognised for infraspecific taxa within *Hakea* in the revision.

The hairs on the pedicel and perianth of the typical subspecies, which seems to be confined to the sandy heaths and sandstone areas of the Sydney region, are sericeous while those of sp. *hirsuta* which is more widespread, occurring in coastal heaths from Sydney to Tasmania, with a disjunct occurrence in the Grampians of Victoria, are tomentose.

Endlicher did not see specimens of *H. teretifolia* var. *hirsuta* but merely adopted Robert Brown's two unnamed taxa, designated α and β under *H. pugioniformis*; Endlicher's name derives from the characteristic used to distinguish Brown's α and β namely "calyx sericea" and "calyx hirsuta". Brown commented that *H. pugioniformis* β was perhaps a good species.

H. erinacea Meissn. and *H. longiflora* (Benth.) R.M. Barker

Hakea longiflora (Benth.) R.M. Barker, comb. et stat. nov.

Basionym: *Hakea erinacea* Meissn. var. *longiflora* Benth., Fl. Austral. 5: 505 (1870). Syntypes: *J. Drummond s.n.*, s. dat, Swan River [B, K, L (2 sheets), MEL 1537917].

H. longiflora is found only in the Mt Lesueur area, north of Perth, in low open heath. Although restricted in distribution, it is apparently reasonably common (pers. comm. S.D. Hopper). In this area it overlaps in distribution with *H. erinacea* Meissn. which it resembles closely. The two species can be distinguished by the length of the perianth, 6.5-12 mm long in *H. longiflora* and 4-7.5 mm long in *H. erinacea*, the length of the pistil, 12-14 mm long in *H. longiflora* and 6-9 mm long in *H. erinacea*, by the ungrooved lower leaf surface of *H. longiflora* compared with the grooved lower surface of *H. erinacea*, by the distal ridge of the seed wing only extending a quarter of the way to the apex in *H. longiflora* but continuing to the apex in *H. erinacea* and by a difference in hair covering on the branchlets and young leaves. In both species the indumentum on the branchlets and young leaves is villous, but in *H. longiflora* they are sparser, 0.6-0.9 mm long and mixed with shorter hairs while in *H. erinacea* the hairs are moderately dense to dense, soft, suberect and shorter (0.2-0.3 mm long).

All of these differences apart, the most distinctive characteristic of *H. longiflora* is the 3.5-4.5 mm long lateral pollen presenter, much longer than that of *H. erinacea* which is 1.6-2.5 mm long, a more usual length for a lateral pollen presenter in *Hakea*. As the stigma is not centrally placed on the pollen presenter there are very distinct differences between the pairs of perianth lobes in the length of the limb, the placement of the anthers, and the size of the anthers. Why such a long pollen presenter should have developed in this species is not known at this stage but it may become obvious if comparative pollination studies were to be carried out on this species and *H. erinacea*. The only other species of *Hakea* to have a lateral pollen presenter approaching that of *H. longiflora* in length is *H. platysperma*. In this species the widely spreading perianth lobes and large red gland producing copious nectar differs markedly from *H. erinacea* and *H. longiflora* and *H. platysperma* is probably either bird or mammal pollinated.

H. auriculata* Meissn. and *H. spathulata* (Benth.) R.M. Barker**Hakea spathulata* (Benth.) R.M. Barker, comb. et stat. nov.**

Basionym: *H. auriculata* var. *spathulata* Benth., Fl. Austral. 5: 510 (1870). Syntypes: *J. Drummond* I, 615, 1839, Swan River (B, BM [2 sheets], G-DC, G, K, MEL 672144, NY p.p., TCD); possible syntype: *J. Drummond* ?93, s. dat., Swan River (K, herb. Hooker — not cited in protologue).

Already recognized as a variety of *H. auriculata* by Benthham in 1870, *H. spathulata* is distinct from *H. auriculata* by its spatulate leaves which are usually not auriculate. The leaves of *H. spathulata* tend to all be of the same shape on a bush although frequently it is only the apical leaves which are green, those lower down persisting but becoming brown. In *H. auriculata* leaves at the apex of the branches are much narrower and usually tricuspidate while those below are much broader, with no colour differences. The flowers of *H. auriculata* are greenish-white, cream or pink and frequently found amongst the tricuspidate leaves at the apex of the branch. Those of *H. spathulata* are deep red, possibly with a yellow limb, and are usually to be found amongst the older brown leaves of *H. spathulata*. Furthermore, although it is in need of investigation it is possible that *H. auriculata* is non-lignotuberous as it forms an erect compact bush in contrast to the several-stemmed, lignotuberous *H. spathulata*. Both species occur in the sand heaths between Perth and Geraldton.

NAME CHANGES***H. denticulata* R. Br. instead of *H. rubriflora* Lamont**

Unfortunately when Lamont (1973) described his new species of *Hakea*, *H. rubriflora*, he was unaware that it was conspecific with the earlier *H. denticulata* R. Br. This species was first described by Robert Brown in 1830 in his supplementary treatment of Proteaceae and the description was based on a William Baxter collection from King Georges Sound. The type material consists of branches which lack any flowers and consists predominantly of leaves which are much larger and more toothed than the normal range for this species. They coincide instead with the juvenile leaves of this species. The presence of a few appressed hairs on the leaves and stem of the type specimen and on another possible isotype is sufficient to indicate that the two are conspecific. No other species of the *H. prostrata* complex, to which these species belong (Barker, Barker & Haegi, in preparation), has appressed hairs, and none of the other species has so many teeth per side of an individual leaf.

***H. drupacea* (Gaertn. f.) Roemer & Schultes
instead of *H. suaveolens* R. Br.**

Amongst those collections of horticultural interest in Europe in the earlier part of the nineteenth century were a number of *Hakea* species (Cavanagh 1990, Nelson 1990). Consequently there are a number of obscure names within the genus which can sometimes on further study prove to be earlier than names we usually associate with the species. Such is the case with *H. suaveolens* R. Br.

The name *H. suaveolens* R. Br. is predated by the earlier *Conchium drupaceum* Gaertn. f. When Robert Brown (1810) described *H. suaveolens* he was obviously unaware that it was conspecific with *Conchium drupaceum* of C.F. Gaertner (1807). Roemer and Schultes (1818) made the combination *Hakea drupacea* although they were obviously unaware of the identity of the species as the entry was “?Hakea drupacea”. Their publication was a mechanical listing of the species which belonged to *Hakea*, with the assumption that anything described under

Conchium was a *Hakea*. Benthams (1870) appears to have been the first to suggest that *Conchium drupaceum* might be *H. suaveolens*.

Had he not misidentified it as *H. gibbosa*, Labillardiere, the collector of the type specimen of *Conchium drupaceum*, may well have described his collection as a new species, as he did for the rest of his collections of *Hakea*. In describing 3 new species of *Hakea*, Labillardiere (1804) made reference to differences between the new species and *H. gibbosa*, when presumably his comparisons were made with respect to what now has to be known as *H. drupacea*.

H. lasiocarpa R. Br. instead of *H. dolichostyla* Diels

While the name *H. dolichostyla* Diels has erroneously been applied to *H. horrida* on herbarium specimens (see above) in the past, the true *H. dolichostyla* (Diels 1904) is conspecific with *H. lasiocarpa*, described much earlier by Robert Brown (1830). A part of the *H. varia* complex, this species is easily distinguished from the rest of the complex by its much larger flowers, up to 8 mm long, and by its much longer, 23-25 mm long, pistil. In the absence of flowers however, there is no way of distinguishing this species from *H. varia*. The type of *H. lasiocarpa*, collected by William Baxter from 'between the two ranges of mountains inland from King Georges Sound' is almost lacking in flowers but for a few old remnants amongst the leaves. Had these not been present it would have been impossible to apply the name *H. lasiocarpa* to a specific taxon.

Two distinct species, *H. baxteri* R. Br. and *H. brownii* Meissn.

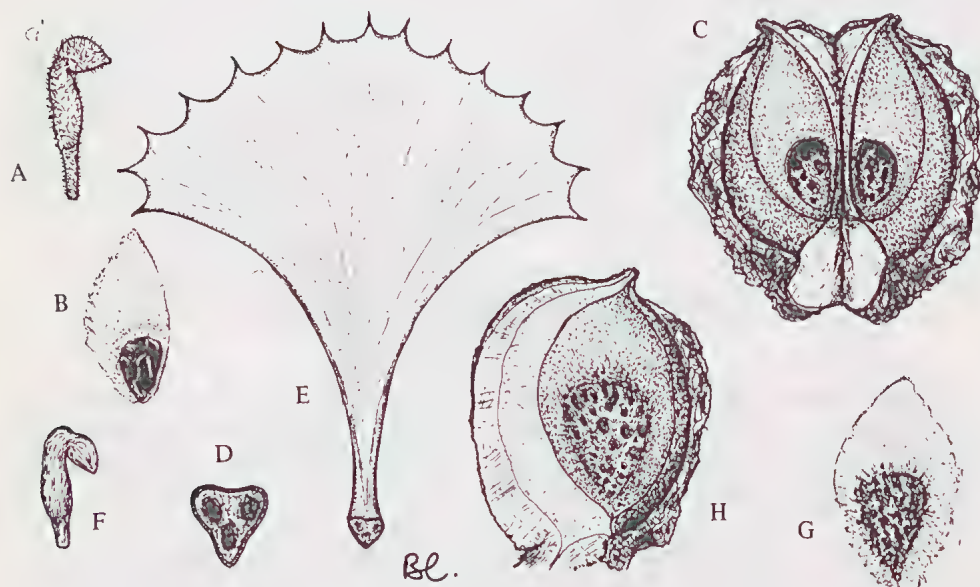


Fig. 4. Comparison of *H. baxteri* R. Br. and *H. brownii* Meissn. A-E, *H. baxteri*. A, bud, $\times 2$ (George 403); B, seed, $\times 0.75$; C, fruit, $\times 0.75$; D, leaf scar, $\times 2.5$; E, leaf, $\times 1$; (all Phillips CBG 016644). F-H, *H. brownii*. F, bud, $\times 2$; seed, $\times 0.75$; H, fruit, $\times 0.75$; (all Purdie 5313).

Two species of south-west Western Australia, both of which are characterised by fan-shaped leaves, and which cannot be distinguished vegetatively except on lignotuber differences, have usually been called *H. baxteri* R. Br. (Bentham 1870, George 1984, Blackall & Grieve 1988). However there are two distinct species which can be separated on floral and fruiting characteristics as well as distribution. A name already exists for the second species, *H. brownii* Meissn. *H. baxteri*, the rarer of the two species, is found in the Stirling Ranges area, while *H. brownii* is found in the sand plains and sand heaths north of Perth. *H. baxteri* has larger, 7-9 mm long vs. 5-7 mm long, flowers in which the ferruginous hairs are woolly tomentose rather than appressed as they are in *H. brownii*. Within the open woody fruits of *H. baxteri* (Fig. 4) there is a band of red-brown porous tissue along the suture; this band is very broad at the base of the fruit but narrows towards the apex. In contrast, the red-brown tissue in the fruits of *H. brownii* is narrower and of a similar width from base to apex. Furthermore, in *H. baxteri* the seed wing extends broadly and fully down one side of the seed-body and narrowly down the other, but it does not completely encircle the seed-body as it does in *H. brownii*.

H. baxteri is non-lignotuberos while *H. brownii* is lignotuberos (George 1984).

H. roei Benth.

The name *H. roei* still persists in the Western Australian literature (Blackall & Grieve 1988) and it has often been misapplied to *H. cygna* ssp. *cygna* (herbarium identifications). There is no doubt that the type is conspecific with *H. pandanicaarpa* ssp. *crassifolia*.

Acknowledgements

The major part of this work was carried out at the State Herbarium of South Australia on an ABRs grant, which covered my own employment and also the employment of personnel for the construction of a *Hakea* data base. The data base has proved very useful in preparing this paper. Beth Chandler was also employed as artist on this project and the few illustrations which appear here are taken from the plates she prepared for inclusion in the Flora of Australia. My co-workers, Laurie Haegi and Bill Barker, are thanked for suggesting my participation with them in revising the genus. They initially set up the DELTA files with the help of Tom Stubbs and Alex Gunjko of the Information Systems Branch of the Department of Environment and Planning and my introduction to this mode of carrying out taxonomic revisions has been relatively painless, very rewarding and, in the long run, time saving. My special thanks to Bill for his particular comments on this paper.

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BOOK REVIEWS

Captain S.A. White

Rob Linn. "Nature's Pilgrim. The Life and Journeys of Captain S.A. White, naturalist, author and conservationist", 1989. S.A. Govt Printer: Adelaide.

Captain S.A. White lived from 1870 to 1954, a time scarcely documented in the natural history of South Australia or Australia. Most historical works tend to concentrate on earlier explorers, many of whom were naturalists or were accompanied by naturalists on their expeditions. By the time S.A. White began his work Australia had been mapped and numerous natural history items had been sent back home to the 'Old Country'. Just as his father, Samuel White, had provided bird specimens for John Gould at an earlier time, S.A. White provided bird skins for the Australian born but English-based, Gregory M. Mathews for the latter's large work "The Birds of Australia." Many of the type specimens in this work were based on S.A. White's collections.

But Captain White did not only collect bird skins, although this was his field of expertise. On his expeditions into the area between Oodnadatta and Alice Springs in 1913, between Oodnadatta and the Musgrave Ranges with the Royal Geographical Society in 1914 and between Farina and Innamincka with the South Australian Museum in 1915-16, White and his helpers collected mammals, lizards, frogs, fish, molluscs, spiders, insects, crustacea, stomach contents of birds, water samples and plants. All scientific results were written up in the Transactions of the Royal Society and a number of newly described insects and plants were named after him or from his collections. Amongst the plants described as new by J.M. Black were *Panicum whitei*, *Toxanthus whitei* (= *Millotia greevesii*), *Trichinum whitei* (= *Ptilotus parvifolius*), *Eremophila neglecta* and *Bassia inchoata* (= *Threlkeldia inchoata*).

Linn provides a thorough background to White's forebears, but unfortunately in Chapter 1 fails to distinguish carefully enough between Samuel White the father and Samuel White the son. It was not until reaching the end of this chapter that this reader (and others) realized it was the father who was the subject of the first chapter. Perhaps the title of the chapter is at fault or alternatively reference to a simple family tree may have saved this confusion.

Chapter 2 covers the development of S.A. White as a naturalist along with his Boer War experiences and collecting expeditions in East and South Africa. On his return from South Africa he married Ethel Rosina Toms, a fellow ornithologist, who participated in all of White's earlier forays throughout South Australia and who is deserving of a higher profile in South Australian history. The rest of the chapters cover the various expeditions undertaken by White along with his growth as an outspoken supporter of conservation matters.

White was instrumental, in his role as chairman of the native fauna and flora protection committee of the field naturalist section of the Royal Society, in the establishment of the Flinders Chase nature reserve on Kangaroo Island, the first park allocated for conservation purposes in South Australia. He personally, and at his own expense, travelled the East-West railway line in 1917 destroying the 'imported pest', the sparrow, in an effort to stop it reaching Western Australia, a practice which continues to this day. He was also an outspoken supporter of tribal Aborigines, bemoaning many times the effect of the white man and the "debasing effects of civilization" on these people, although his concern did not extend to those Aborigines who were not "full-blood".

Captain White was continually at odds with others. His support of the concepts of Gregory M. Mathews introduced him into a heated nomenclatural debate with the rest of the Australian ornithological community on the use of trinomials rather than binomials, an area of the book perhaps not clearly explained to the general reader or even those with some knowledge of

systematics. In his expedition with the South Australian Museum in 1915-16 he clashed with the Board about ownership of photographs and who should write up the ornithological account of the expedition. In his public lectures and writings in the press his support of the Aborigines' cause and his criticism of farmers for wanton destruction of the native fauna can hardly have endeared him to many. Allegations that he "was a crank" and interfered in things that didn't concern him show parallels with views encountered concerning the conservation movement today. What a pity that much of what he fought for is now lost to us today.

S.A. White's botanical specimens from his expeditions are now housed in the State Herbarium of South Australia and botanists working on South Australian plants are familiar with his name. I recommend the book as a background to the man although those searching for background detail on specimens collected on his expeditions other than birds would do better to consult the original accounts published in the Transactions of the Royal Society between 1913 and 1918. My major regret on reading the book has been the incompleteness of the scientific side. Documentation of the collections of S.A. White and where they reside, his scientific publications and perhaps a list of those organisms which received their names as a result of White's collecting activities would have been valuable as an appendix.

After his epic journey by car from Adelaide to Darwin and back in 1923 S.A. White withdrew from scientific societies and the conservation movement. Why he did so at the peak of his career and at a time when his influence was probably greatest is not really established. However it does leave the reader with a feeling of deflation, especially when it is known that he lived for a further 30 years.

Rob Linn. "Nature's Pilgrim. The Life and Journeys of Captain S.A. White, naturalist, author and conservationist", pp. 172, 56 photographs and maps. (S.A. Govt Printer: Adelaide). Hard-bound. \$39.95.

R.M. Barker
State Herbarium of South Australia

Ecology and Conservation of Tasmanian *Sphagnum* Peatlands

Whinam, J., Eberhard, S., Kirkpatrick, J. and Moscal, T. "Ecology and Conservation of Tasmanian *Sphagnum* Peatlands", 1989, Tasmania Conservation Trust Inc.: Hobart.

This is the first time management proposals have been put forward for this valuable and little understood ecosystem. These management recommendations follow on from extensive collections of field data and are timely in view of the threat to the future of the Tasmanian *Sphagnum* peatlands from peat-mining and moss-harvesting.

The authors give an overview of the types of *Sphagnum* peatlands in Tasmania, describing both vascular and non-vascular plants, their communities and the invertebrates associated with them. The likely effects of grazing, fire and harvesting on the ecology of the *Sphagnum* peatlands and their implications for management and conservation are discussed. The data are presented in 10 Tables and 16 Figures which include 18 maps.

Whinam, J., Eberhard, S., Kirkpatrick, J. and Moscal, T. "Ecology and Conservation of Tasmanian *Sphagnum* Peatlands", pp. 107, 16 figs and several pen and ink illustrations (unnumbered) by Jo Eberhard. (Tasmanian Conservation Trust Inc.: Hobart). Softbound. \$9.50 plus postage.

Enid Robertson
State Herbarium of South Australia

A guide to herbarium techniques

Forman, L. & Bridson, D. "The Herbarium Handbook", 1990.
Royal Botanic Gardens: Kew.

The herbarium has been the main aid to plant taxonomy for more than 200 years, yet there is little literature readily available on the many techniques often developed independently throughout the world. Where Womersley (1981), the only other handbook on the market, addressed the problems from the running of an herbarium serving a local flora, the wider approach presented here, based on an international herbarium such as Kew, present points of interest to beginners as well as experienced taxonomists. Both books deal largely with similar subjects and only their approach is different. While Womersley (1981) is written for the beginner, tracing a collection from the field through various steps into the herbarium for subsequent research, "The Herbarium Handbook" starts with the maintenance and running of a herbarium. Throughout the latter and especially under "additional techniques" specialist hints abound when discussing subjects such as rearranging of a herbarium collection, preparation of illustrations or checklists and collectors and their itineraries. The wide range of information on collecting techniques for trees to fungi shows the extensive experience an international herbarium can draw on. The final chapters on "economic botany", "ecology" and "conservation" may seem marginal but illustrate the real value of the herbarium as a repository of all botanical information however tangential to taxonomic research. Since basic plant taxa have largely been described in many parts of the world a study of their detail biology including their relation to their environment is now essential.

Throughout the book clarity is preserved by a concise text but this is not at the expense of reasoning. One might argue an extravagant amount of space was allotted to the "herbarium knot" (pp. 21, 22) or the mounting of herbarium specimens (pp. 54-59) in spite of their usefulness. There are obvious imbalances and one is inclined to excuse these as the text is based on lecture notes which so often stress particular views. The text would have benefitted from closer editing not so much on individual style of the contributors but rather inconsistencies such as headings on pp. 16, 26 and 188. It seems unnecessary to have an obvious bias towards techniques used at Kew for an "International Diploma Course in Herbarium Techniques", as one is informed in the foreword. This is particularly evident in curatorial discussions as for instance it is not mentioned that most botanists and archivists agree that there are a number of advantages in placing each herbarium sheet in an individual folder. There is still room for basic information as found in Fosberg & Sachet (1965) although it also has a specialised approach. The lack of finishing touches, intended or otherwise, may not make the work the definitive herbarium handbook, but everybody will agree that it is a guide to a wealth of valuable information clearly presented.

Forman, L. & Bridson, D. "The Herbarium Handbook", pp. 213, figs. 52. (Royal Botanic Gardens: Kew). Softbound. £12.

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H.R.Toelken
State Herbarium of South Australia

A well presented flora of Hawaii

Wagner, W.L., Herbst, D.R. & Sohmer, S.H. "Manual of Flowering Plants of Hawai'i, 1990. University of Hawaii Press in association with Bishop Museum Press: Honolulu.

The unique flora of the Hawaiian Archipelago has been matched by a thorough taxonomic treatment compiled with the assistance of many specialists. This flora is well presented, printed in two columns, well illustrated, accompanied by synonyms, but without cumbersome nomenclature which will be published separately, and filled with much additional information.

Among the introductory chapters a detailed account of the geology, weather and vegetation types are followed by technicalities such as collectors in the area and keys to the classes, subclasses and families. A phylogenetic list of and keys to the families and higher taxa (according to Cronquist 1981) is provided, but then the descriptions within the dicots and monocots are alphabetically arranged according to family and in turn their genus and species. The descriptive part provides keys to all the taxa, synonyms, common names in English and/or Hawaiian, brief notes on their distribution and ecology as well as whether the plant is naturalised, indigenous or endemic. The rarer endemics are given a rarity rating according to the system of the IUCN, the naturalised plants accompanied by the first known record of the plant in the area. Chromosome numbers and additional notes are stated where available. Over 50% of the species are illustrated by clear line drawings to scale. This well presented manual is complete with glossary, references (for a complete bibliography see Mill et al. 1988) and an index of 120 pages.

It is the first flora of the flowering plants of Hawaii since 1888, describing 1817 species or 1963 taxa of which 1094 or 56% are native, or conversely a spectacular 44% of the taxa are introduced. A unique 89% of the 956 native species is endemic.

Wagner, W.L., Herbst, D.R. & Sohmer, S.H. "Manual of the Flowering Plants of Hawai'i", 2 vols, pp. 1853, plates 240, figs 29. (University of Hawaii Press in association with Bishop Museum Press: Honolulu). Hardbound. US\$85.

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H.R. Toelken
State Herbarium of South Australia

PLANT PORTRAITS

25. *Acacia hexaneura* P.Lang & R. Cowan, sp. nov. (Leguminosae)

Illustration: Based on herbarium specimens of the holotype and paratypes.

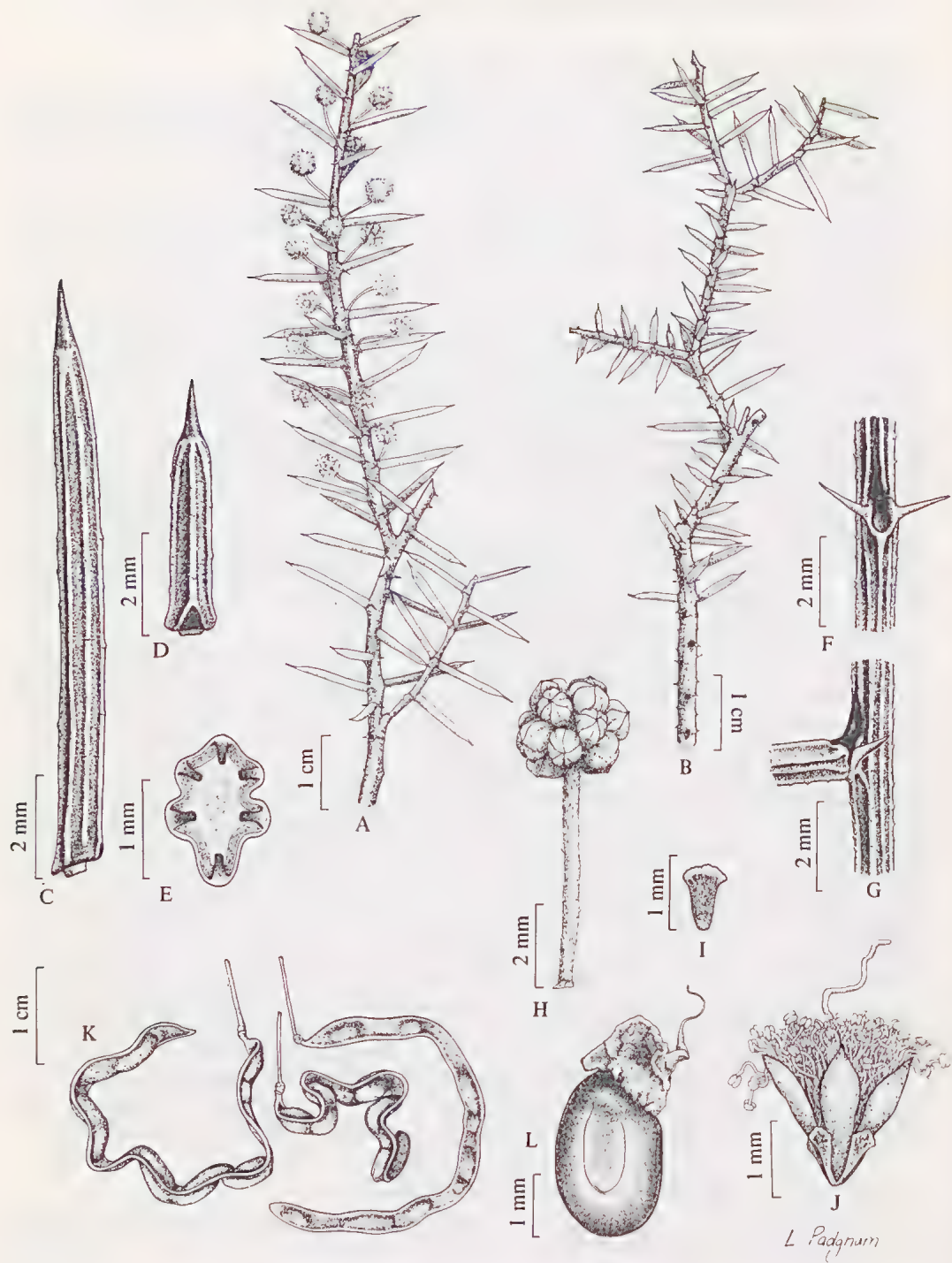
Acacia enterocarpae affinis a qua differt stipulis spinosis ad 1.5 mm longis, phyllodiis sessilibus compressis 5-17 (-23) mm longis 6-nerviis (nervis singulis in quoque margine et binis in quoque latere), pedunculis 1(2) per axillam, bractea basilari pedunculi inconspicua 0.2-0.6 mm longa, alabastris subglobulosis et leviter applanatis, medi-nervo petalis versus apicem dorsaliter vix incrassatis, leguminibus parce strigosis leniter ad valde undulatis et plerumque irregulariter flexis sed interdum tantum falcatis.

Type: G.C. Bishop s.n. (holo: AD 99019139; iso: CANB, PERTH), 45 km S Kimba on roadside adjacent Section 16, Hundred of James, Eyre Peninsula, South Australia, 28.vii.1984 .

Dense, rigid, prickly shrub to 1-1.5 m tall, spreading to 2 m wide, often rounded in shape. *Branchlets* angular, striate, strongly ribbed when young; ribs yellowish with sparse, minute tubercles formed by the bases of inflexed, straight, whitish, small hairs; interstices mid-green with raised whitish stomata; older branchlets becoming red-brown, terete, weakly ribbed, tuberculate, glabrous and resinous. *Stipules* persistent, spinose, straight or slightly recurved, straw-coloured ageing dark brown, to 1.5 mm long, on a thickened flange surrounding base of phyllode. *Phyllodes* sessile, perpendicular or sometimes slightly inclined, rigid, mid-green, straight or slightly recurved, compressed, 5-17 (-23) mm long, 1.2-2.0 mm wide, 0.7-1.3 mm thick, scabridulous, with raised whitish stomata, distinctly 6-nerved (one on adaxial margin, one on abaxial margin and two on each face, very rarely with an extra but minor nerve below adaxial one), with nerves strongly raised in well-defined ridges and sparsely tuberculate by the bases of minute caducous whitish inflexed hairs, abruptly tapered into rigid brown mucro 1-2 mm long, base slightly expanded and articulate, readily detaching from stem; pith with red-brown resin globules; *pulvinus* extremely reduced and completely concealed by stipular flange; *gland* in a notch at extreme base of phyllode, nerve on adaxial margin bifurcating immediately above notch which is filled with small to large, dark brown resin mass remaining stiffly viscous. *Inflorescences* simple, axillary. *Peduncles* 1(2) per node, (3-) 5-7 (-9) mm long, appressed-puberulous; basal peduncular bract inconspicuous and often embedded in resin, red-brown, shallowly triangular or depressed ovate, 0.2-0.6 mm long. *Flower-heads* globular, (13-) 16-20 (-25)-flowered, golden-yellow, 4-6 mm diam. at anthesis (when dry); *bracteoles* minute, spatulate with viscid-puberulous blade. *Flowers* 5-merous; buds subglobular and slightly flattened; *sepals* free, narrowly oblong with slightly expanded apex, $\frac{1}{3}$ - $\frac{1}{2}$ as long as petals, viscid-puberulous; *petals* becoming free, obovate-elliptic, glabrous, with mid-nerve indistinct and very slightly thickened dorsally towards apex; *ovary* appressed-puberulous. *Legumes* dark blackish-green, drying to light brown, often persisting in a tangled mass after dehiscence, linear, weakly to strongly undulate and usually irregularly bent or folded in three dimensions but sometimes merely falcate, 35-90 mm long, 2-3.3 mm wide, crustaceous, sparingly strigose with antrorse white hairs much denser near base, slightly raised over seeds; margins thickened, pale, not constricted between seeds. *Seeds* longitudinal in legume, light red-brown to dark greenish-grey, with paler zone around pleurogram, (broadly) ellipsoid-oblong, 2.5-3.5 mm long, 1.5-2 mm wide, 1-1.5 mm thick, shiny, with slight peripheral ridge; *pleurogram* "U"-shaped, c. $\frac{2}{3}$ length of seed; *aril* apical, white suffused pale brown, translucent, crested, $\frac{1}{3}$ - $\frac{2}{3}$ length of seed, vitreous, finely rugose, tapered abruptly into funicle; *funicle* small, filiform, sinuous. Fig. 1.

Selected specimens examined (from a total of 24 collections)

SOUTH AUSTRALIA: Eyre Peninsula Region: C.R. Alcock 697 (AD), junction of Kimba-Cowell road and scenic highway (old Pt Augusta road), 10.viii.1965; C.R. Alcock 1258 (AD, PERTH), old highway 15 km NW Cowell



adjacent to Section 80, Hundred of Miltalie, 16.i.1967; *G.C. Bishop s.n.* (AD), roadside adjacent to Section 34, Hundred of James, c. 50 km S Kimba on road to Cowell, 28.vii.1984; *J.D. Briggs 1101* (CBG, AD, H), near Pine Hill HS, c. 25 km SSE Kimba, 33°19'S 136°33'30"E, 29.viii.1983; *B. Copley 2996* (AD), 17 km NW Cowell, 3.i.1970; *T. Croft 21* (AD), Section 29, Hundred of James, 24.xi.1989; *P.J. Lang D8861* (AD), Section 17, Hundred of James, c. 4 km W Sheoak Hill, 17.vii.1985; *P.J. Lang D8774* (AD), Section 32, Hundred of Yalanda, c. 3.5 km E Yalanda Hill, 26.xi.1985; *P.J. Lang D8717* (AD), *D8718* (PERTH), *D8719* (AD), *D8721* (AD), Section 106, Hundred of Miltalie, c. 5 km SE Carroo Curtie Reservoir, 33°28'40"S 136°42'30"E, 26.x.1987; *P.J. Lang 1809* (AD, PERTH), c. 3 km WSW Rarma Downs, on Cowell-Kimba road, 33°25'S 136°48', 26.xii.1989; *D.J.E. Whibley 7305* (AD), on road to Yabmana, 33°37'S 136°46'E, 29.viii.1976.

Distribution: Endemic to northeastern Eyre Peninsula between Kimba and Cowell within a range of 45 km. Fig. 3.

Habitat

Occurs in well-drained gravelly loams and sands. Frequently found on small quartzite hills in skeletal soil often with associated limestone or ironstone deposits. Also favours disturbed sites along roadsides, in gravel pits or limestone rubble pits, and in regrowth after burning or clearance of vegetation. A population east of Yalanda Hill (P.J.L D8774) is exceptional in being associated with a granite outcrop.

Soil sampled from the site of P.J.L 1809 is a reddish-yellow (Munsell code: 5 YR 6/6) sandy loam of pH 8.5 with quartz and limestone gravel.

In undisturbed sites typical plant communities are: *Eucalyptus dumosa* — *E. gracilis* (— *E. socialis* — *E. calycogona*) open scrub of whipstick mallee over sparse sclerophyllous shrubs; and *Melaleuca uncinata* (broombush) open heath/tall shrubland. Characteristic associated plants include *Boronia inornata*, *Lasiopetalum behrii*, *Westringia rigida*, *Olearia muelleri* and *Dodonaea bursariifolia*.

Phenology: Flowers July-September, and in mature fruit November-December.

Affinities

Acacia hexaneura is a very distinctive species in subgenus *Phyllodineae* section *Plurinerves* on account of its spinose stipules (uncommon in the subgenus) and prominently six-nerved phyllodes (two nerves per face and two on each margin). It is clearly most closely related to *A. enterocarpa* (jumping-jack wattle) which shares the following important features: branchlets ribbed, tuberculate, with antrorse hairs; phyllodes spreading, rigid, pungent and multi-nerved; inflorescence simple (not racemose); peduncles rather short and hairy with a solitary basal bract; heads globular, relatively small and few-flowered; flowers 5-merous with sepals free; legumes undulate; and seeds longitudinal with a terminal aril.

Despite its close affinity, *A. enterocarpa* differs significantly from the new species by its: inconspicuous, nonspinose stipules under 0.5 mm long; longer phyllodes (20-45 mm) with 10-12 nerves and an obvious short pulvinus; peduncles up to 3-6 per node with the basal peduncular bract conspicuous (0.5-1 mm long); mature flower buds more or less obconical with mid-nerve of petals prominently thickened dorsally towards their apex; legumes tightly folded in a single plane and sparsely to densely hirsute with longer more divergent hairs. It also differs by the hairs of young branchlets tending to be denser, longer, often curled and inclinate

Fig. 1. *Acacia hexaneura* P. Lang & R. Cowan. A, flowering branchlet; B, branchlet with shorter phyllodes marking end of previous season's growth; C, detached phyllode in side view with pulvinus exposed; D, shorter phyllode viewed from above, showing gland in notch at base of bifurcating adaxial nerve; E, transverse section of phyllode; F, node in front view with phyllode detached, showing stipules and stipular flange encircling phyllode scar; G, node in side view, showing base of phyllode and axillary resin mass above stipule; H, peduncle and flower head in mature bud; I, bracteole; J, recently opened flower; K, legumes from single population varying in shape and degree of undulation; L, seed. (A, C, E, H, I, J, *G.C. Bishop s.n.* (holotype); B, D, G, L, *P.J. Lang 1809*; F, *R. Bates 3276*; K, *P.J. Lang D8774*).

rather than inflexed. *Acacia enterocarpa* is mainly found farther south on Eyre Peninsula and prefers better agricultural soils with calcareous loams and clays. Although there is a northern outlier in the vicinity of Cowell, no sympatric occurrences with *A. hexaneura* have been observed. The two species appear to be ecologically distinct and show no evidence of morphological intergradation.

Three other species on Eyre Peninsula resemble *Acacia hexaneura* in having short, rigid, spreading, pungent, sessile, multinerved phyllodes and (sub-)globular flower-heads. *Acacia rhigiophylla* (dagger-leaved wattle) is the most likely to be confused with the new species, as it also has small spiny stipules, and is similar in habit, general appearance, and its distribution on Eyre Peninsula. Closer examination reveals that it is very dissimilar in a number of ways. For example, *A. rhigiophylla* has strongly flattened phyllodes with three or more nerves per face; heads cylindrical to oblong, loosely 3-10-flowered, and subsessile to shortly pedunculate; flowers 4-merous with calyx gamosepalous; legumes strongly curved and not undulate; and seed with a yellowish aril. Furthermore, *A. rhigiophylla* is almost exclusively associated with granite outcrops, whereas *A. hexaneura* has only once been found near granite. *Acacia colletioides* and *A. nyssophylla* can be readily distinguished from *A. hexaneura* by their: caducous stipules, phyllodes 8- and 16- (or more) nerved respectively, legumes strongly curved or coiled, and seeds partially enveloped by a prominent yellow or orange aril.

Conservation status

Acacia hexaneura is considered to be a relatively secure species even though it tends to occur in small populations of usually less than 50 plants. This is because populations are well scattered throughout its range and have often escaped clearance on stony rises that are unsuitable for agriculture.

Two small populations of *A. hexaneura* in Section 17, Hundred of James are conserved in a 400 ha Heritage Agreement area. The species may also be represented in Sheoak Hill Conservation Park as it grows in disturbed soil along the road reserve adjoining the park. A conservation status code of 2RCi is suggested using the criteria of Briggs & Leigh (1989).

Etymology: the epithet refers to the prominently and consistently 6-nerved phyllodes, from the Greek *hexa-* (six) and *neuron* (nerve).

26. *Acacia praemorsa* P. Lang & Maslin, sp. nov. (Leguminosae)

Illustration: Based on herbarium specimens of isotype and paratype collections.

Frutex erectus ad 1-3 m altus, saepe surculosus. *Ramuli* acutangulati, glabri. *Stipulae* caducae, anguste triangulares, scariosae. *Phyllodia* erecta ad patentia, laxa, flexibilia, leniter ad valde incurvata, linearia vel anguste linearia, (5-) 20-90 mm longa, (1-) 1.2-2.4 (-2.8) mm lata, 0.2-0.6 mm crassa, laevia, glabra, uninervia; medi-nervus immersus, ad paginam invisibilis; *apex* praemorsus, a glande atrobrunnea resinacea oblique truncatus, a mucrone excentrico rubro-brunneo incurvo tumido brevi in latere abaxiali superatus, a unguibus duobus rubro-brunneis stipuliformibus incurvis parvulis in latere adaxiali appendiculatus; glans in margine adaxiali 6-18 mm supra pulvinum sita. *Racemi* 1(2) per nodum, capitulis floriferis 1(2); axis 1.5-3.5 (-6) mm longus, glaber, ebracteatus, saepe surculo apicali propullanti. *Pedunculi* (3) 6-12 mm longi, glabri; bractea solitaria, sero caduca, aurea-brunnea, cucullata, 1.3-2 mm longa, laevis, scariosa, plerumque versus apicem bifidens, secus marginem apicalem fimbriata. *Capitula* globosa, laete flava, 34-50 (-58)-floribus. *Flores* 5-meri; sepala libera, linearia, ad apicem trullata, paleacea; petala libera, oblanceolata, circa 2 mm longa, paene glabra. *Legumina* linearia, recta vel leniter curva, ad 135 mm longa, 5-8.5 mm lata, glabra, crustacea ad paene cartilaginea, supra semina modice elevata. *Semina* in legumine longitudinalia, fuliginea, elliptica-lenticularia, 4.5-6.8 mm longa, 3-4 mm lata, 1.5-2.3 mm crassa, punctulata; *arillus* sordide albidus, clavatus, carinatus.

Type: P.J. Lang 1824 (holo: AD; iso: CANB, CBG, K, MEL, NSW, PERTH), Section 362, Hundred of Mann, c. 3 km W of Glenville HS (Yabmana) NW corner of scrub block, 33°38'30"S 136°38'45"E, Eyre Peninsula, South Australia, 27.xii.1989.

Erect, glabrous, often suckering shrub to 1-3 m tall. *Bark* red-brown ageing silvery-purplish, smooth on stems, sometimes dark and fissured at base of old trunks. *Branchlets* green, acutely angled, smooth, glabrous. *Stipules* mostly caducous, weak, straw-coloured to red-brown, narrowly triangular, 0.8-1.4 mm long, scarious; often persistent, darker and larger on flowering axils. *Phyllodes*: erect to spreading, mobile about base, soft and flexible, mid-green to dark green, slightly to strongly incurved, linear or narrowly linear, (5-) 20-90 mm long, (1-) 1.2-2.4 (-2.8) mm wide, 0.2-0.6 mm thick, smooth (but with slight irregular, longitudinal wrinkling when dry), with a dull sheen, glabrous; 1-nerved, with single major *nerve* completely submerged and not visible superficially (except on very immature phyllodes or phyllodes of young suckers where it is evident by a weak medial indentation); *apex* premorse, obliquely terminated by a dark-brown, resinous gland which is flanked adaxially by a pair of red-brown, claw-shaped (incurved-conical), minute, stipule-like appendages and exceeded abaxially by an eccentric, red-brown, incurved, swollen, short mucro; *basal gland* on adaxial margin 6-18 mm above the pulvinus, inconspicuous, slightly recessed, elliptical; *pulvinus* often poorly developed, yellowish to light brown, (0.2-) 0.4-1.5 mm long. *Inflorescences* 1(2) very reduced racemes per node, or sometimes twin racemes with axes fused together; *racemes* 1-headed (twin racemes 2-headed), often with a vegetative shoot growing on from apex; *raceme axis* ebracteate at base, usually 1.5-3.5 mm long (to 6 mm long with early elongation of vegetative shoot), glabrous. *Peduncles* (3) 6-12 mm long, smooth, glabrous; basal peduncular bract solitary, late-caducous, light golden-brown, hood-shaped and completely enclosing young heads, 1.3-2 mm long, smooth, scarious, usually splitting distally into two lobes, fimbriate on apical margin and at the corners of its broad base. *Flower-heads* globose, 34-50 (-58)-flowered, bright yellow, 7.5-9.5 mm diam. at anthesis. *Flowers* 5-merous; *bracteoles* not seen; *sepals* free, linear with trullate apex, c. $\frac{2}{3}$ length of petals and conspicuous on outside of heads in bud, paleaceous; *petals* free, oblanceolate, c. 2 mm long, glabrous except for a few minute scaly hairs, obscurely 1-nerved; *ovary* glabrous. *Legumes* initially coriaceous and dark green with brown margin, drying (pale) red-brown with straw-coloured margin, linear, straight to slightly curved, flat or slightly twisted, up to 11-seeded, to 135 mm long, 5-8.5 mm wide, glabrous, sometimes rugulose, crustaceous to almost cartilaginous, moderately raised over seeds, with a flattened margin c. 0.7 mm wide, slightly to moderately constricted (3-5 mm wide) between seeds. *Seeds* longitudinal in legume, dark brown to almost black, elliptic-lenticular, 4.5-6.8 mm long, 3-4 mm wide, 1.5-2.3 mm thick, moderately shiny, punctulate; peripheral ridge paler brown, thick, obtuse; *pleurogram* "U"-shaped, central, c. $\frac{1}{2}$ length of seed; *aril* off-white tinged brown or green, stained dark brown at junction with hilum, more or less clavate, keeled, extending $\frac{2}{5}$ - $\frac{3}{5}$ down side of seed, sometimes with a few compressed shallow undulations distally; *funicle* brown, straight, flat, transversely oblong, short, 0.3-1 mm long. Fig. 2.

Specimens examined

SOUTH AUSTRALIA: Eyre Peninsula Region: *M. Bennell* D5483, D5484 (AD), Section 73, Hundred of Mann, 5.vi.1986; *M. Bennell & G. Carpenter* D8729, D8732 (AD), Section 3, Hundred of Mangalo, Lot 1B, N of Curtingee Creek 7.v.1987; *T. Croft* 24a (AD), 24b (AD, CANB), Section 362, Hundred of Mann, 30.x.1989; *P.J. Lang* D8723 (AD), D8724 (AD, PERTH), D8725 (AD), Section 73, Hundred of Mann, 5 km NE Yeldulknie HS on S side Yeldulknie EWS reserve, 33°40'S 136°35'E, 25.x.1987; *P.J. Lang* D8722 (AD, PERTH), Section 135, Hundred of Mann, 4 km NE Yeldulknie HS, 25.x.1987; *P.J. Lang* 1823, 1825 (AD), 1826 (PERTH), 1827 (AD), Section 362, Hundred of Mann, c. 3 km W Glenville HS (Yabmana), 33°38'30"S 136°38'45", 27.xii.1989.

Distribution

Endemic to northeastern Eyre Peninsula and extremely localized with four known populations occupying a range of less than 10 km. Fig. 3.

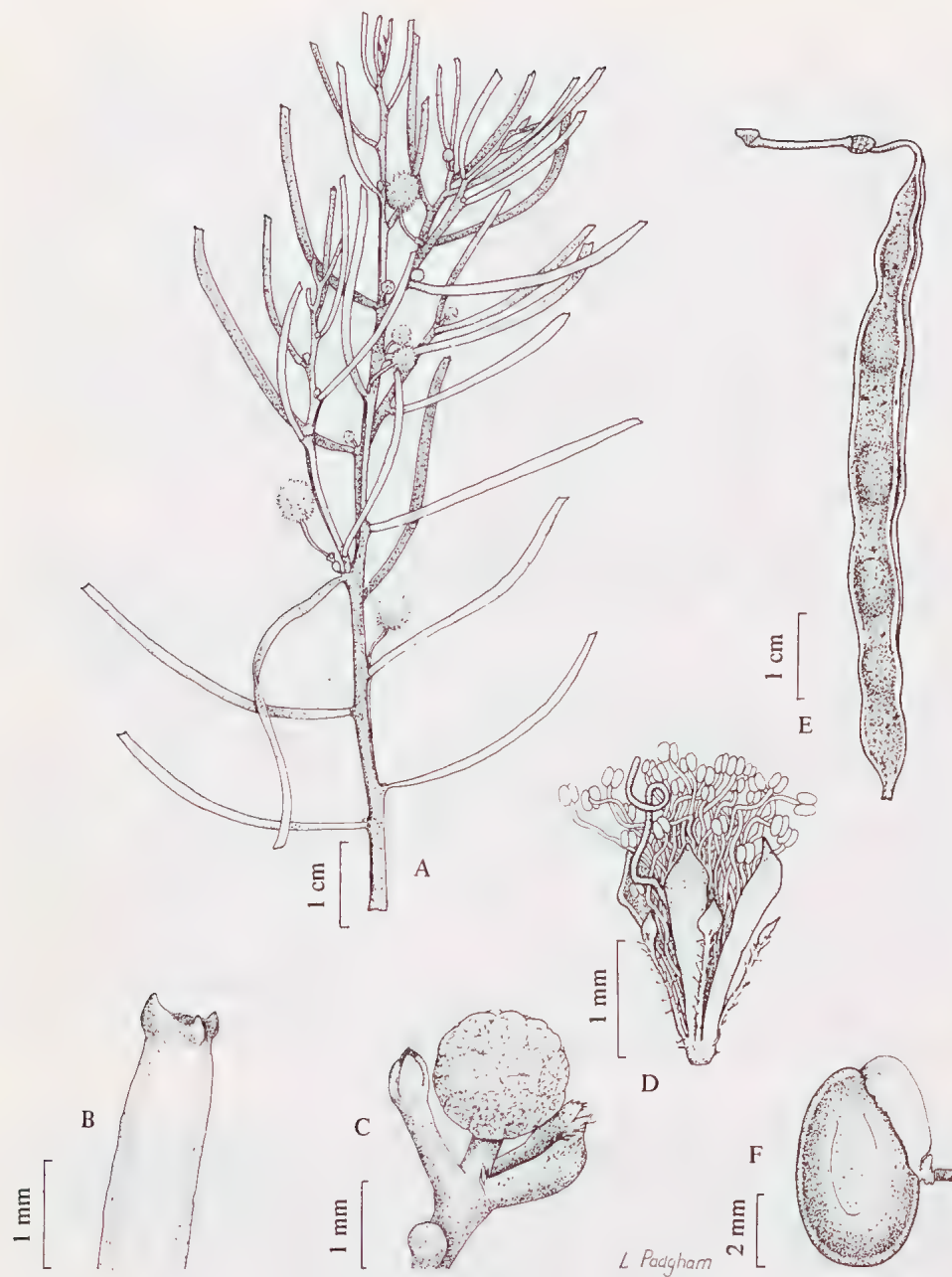


Fig. 2. *Acacia praemorsa* P. Lang & Maslin. A, flowering branchlet; B, apex of young phyllode; C, inflorescence, showing raceme with basal peduncular bract, developing flower head and vegetative shoot, with second raceme in bud at base; D, flower; E, legume; F, seed. (A, *T. Croft* 24a; B, *P.J. Lang* D8724; C, *P.J. Lang* D8725; D, E, F, *P.J. Lang* 1824 (isotype).

Habitat

It is remarkable that the first collection of *A. praemorsa* was made as recently as 1986. This reflects the inaccessible nature of its habitat in valleys surrounded by steep rocky terrain and covered in thick low scrub. None of the known populations can be reached by road.

Acacia praemorsa grows in loamy soils derived from schistose metamorphic rocks often amongst outcrops on the lower slopes of small gullies. It is found where the widespread and dense open-heath communities dominated by *Melaleuca uncinata* (broombush) and/or *Acacia calamifolia* (wallowa) give way to a more open vegetation type. *Acacia praemorsa* typically occurs in *Eucalyptus odorata* (peppermint box) tall shrubland or sometimes in *E. dumosa* — *E. anceps* — *E. socialis* mallee open scrub to tall shrubland. Characteristic associated plants include *Gonocarpus elatus*, *G. mezeianus*, *Dodonaea hexandra*, *Halgania cyanea*, and native grasses.

Acacia praemorsa seems to grow equally well in open areas on slopes and in shady sites at the base of steep gullies. Specimens from shady sites (such as the holotype) are characterized by much longer phyllodes.

Soil sampled at the type locality is a brown (Munsell code: 7.5 YR 5/4) coarse loam pH 5.5-6.0 with fine mica flakes.

Phenology

Sporadic flowers and fruits have been observed in late October and the type population also had an abundance of flowers and ripe fruit in late December. Collections made in May and June were without fruit or flower. It appears that flowering may occur, perhaps sporadically, over a relatively long period from spring to early summer.

Affinities

Acacia praemorsa is quite different from related species in gross morphology and its nearest relative is uncertain. Consequently, a Latin description has been provided instead of a diagnosis.

On close examination *A. praemorsa* is rather unusual with its angled stems and seemingly nerveless, truncate phyllodes. Almost invariably its phyllodes, stems and legumes are irregularly marked with numerous small, brown, resinous, often pustulate scars which presumably result from insect attack. In the field its habit and soft foliage bear a striking resemblance to *Senna artemisioides* (desert cassia/punty bush), and particularly the phyllodineaceous ssp. *petiolaris*. From a distance it may also be mistaken for *A. calamifolia* which often forms extensive colonies nearby. Vegetatively, *A. praemorsa* more closely resembles *A. nematophylla*, a species of coastal dunes on Eyre Peninsula recently distinguished from *A. calamifolia* by Maslin and Whibley (1987). However, *A. nematophylla* differs markedly from *A. praemorsa* in its non-racemose inflorescences, gamosepalous calyx, long funicle which $\frac{1}{2}$ - $\frac{3}{4}$ encircles the seed, and phyllodes with four fine nerves and eglandular apices.

Acacia praemorsa is most closely related to *A. microcarpa* (manna wattle) and its allies, namely, *A. acinacea*, *A. imbricata* and *A. triquetra*. These species of subgenus *Phyllodineae*, section *Phyllodineae*, together with *A. praemorsa*, share the following important characters: phyllodes with apical gland on adaxial margin adjacent to an eccentric and innocuous mucro, racemes extremely reduced, basal peduncular bract solitary, seeds longitudinal with poorly developed peripheral ridge, and aril clavate and extending down one side of seed (Maslin, 1987). Apart from *A. acinacea*, all the members of this "*A. microcarpa* group" occur on Eyre Peninsula.

Acacia praemorsa differs from all other members of the "*A. microcarpa* group" by the following characters: phyllodes linear to narrow-linear, 20-90 mm long and 1.2-2.4 mm wide (length/width ratio 10-65), nerves submerged and thus seemingly absent, raceme axes 1.5-3.5 mm long, heads 34-58 flowered, and seeds punctulate. The other members of the "*A. microcarpa* group" have phyllodes that are shorter and/or broader, rarely narrow-linear, and have obvious (although often not prominent) midribs. They also have shorter raceme axes (0.5-1.5 mm long), smaller heads (8-22-flowered), and non-punctulate seeds.

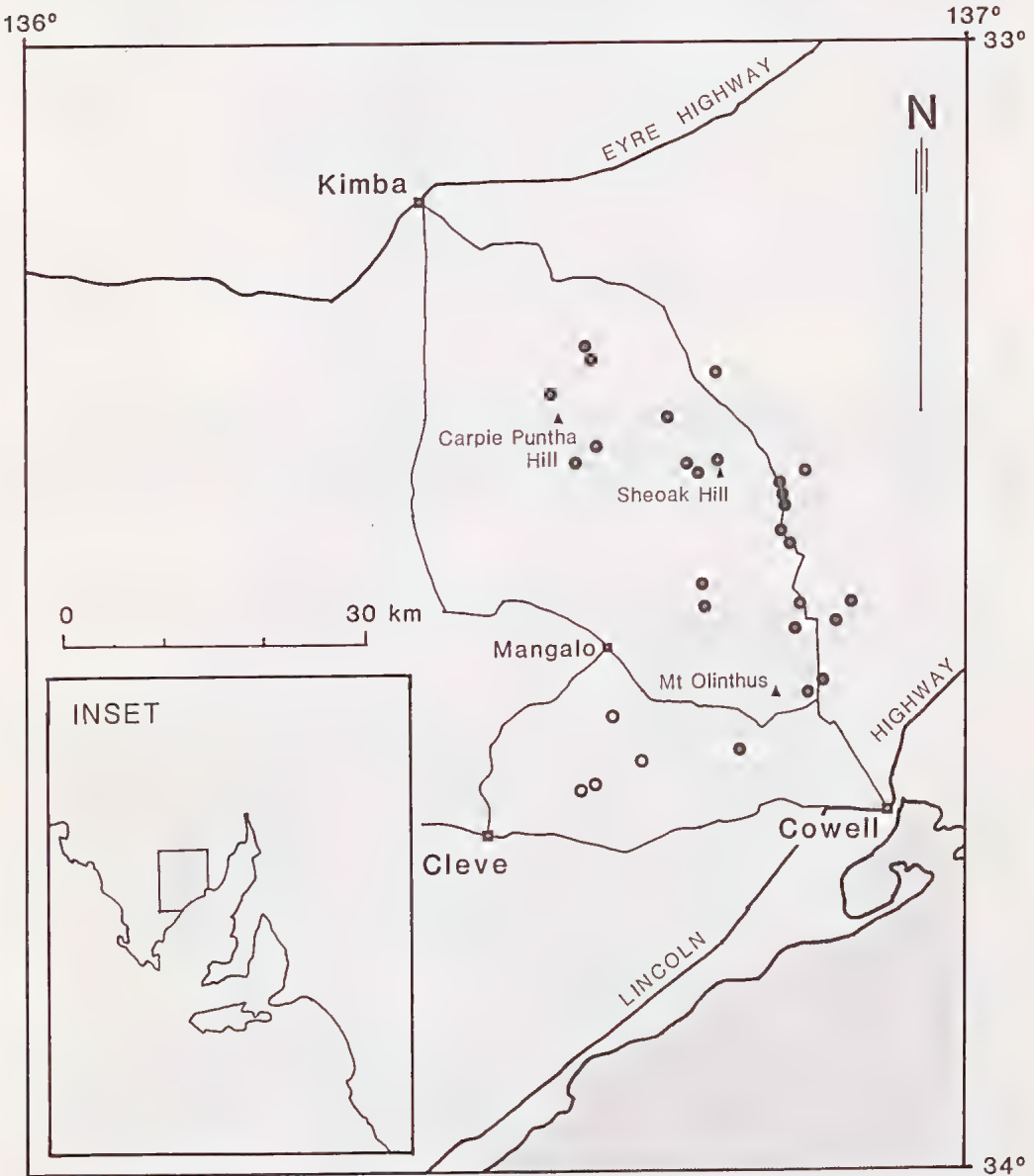


Fig. 3. Distribution of *A. hexaneura* (closed dots) and *A. praemorsa* (open dots) based on herbarium records and field observations.

A distinctive feature of *A. praemorsa* is the presence of a minute, almost microscopic, pair of claw-like appendages flanking the terminal gland of the phyllode. Although not previously reported, similar stipule-like structures were observed on *A. microcarpa*. In both species they are evident on the apices of very immature phyllodes appearing as lobes similar in structure to the developing mucro. In *A. microcarpa* the stipule-like appendages are often lost as the phyllode expands and the apex becomes eroded, but they persist on mature phyllodes of some individuals (e.g. *C.R Alcock 707, D.J.E. Whibley 1907*) as obvious projections immediately on the adaxial side at the end of the midrib. As these structures appear to be lacking in the other members of the group, *A. microcarpa* is possibly the closest relative of *A. praemorsa*.

Gland-bearing apices are uncommon in section *Phyllodineae* but do also occur in the "*Acacia victoriae* group" (Maslin, in press), some members of the "*A. wilhelmiana* group" (Maslin, 1990), *A. johnsonii* and related species, *A. dictyophleba* and related species, and a few other species. *Acacia praemorsa* shows no obvious close affinities to any of these taxa and is readily distinguished by the various attributes discussed above.

Conservation status

The four known populations of *A. praemorsa* were discovered by officers of the Native Vegetation Management Branch, Department of Environment & Planning, in assessing applications for vegetation clearance. In all cases, consent for clearance was refused. The population in Section 3, Hundred of Mann is now protected under a Heritage Agreement and another Agreement currently being prepared will cover the population at the type locality.

The population in Section 73, Hundred of Mann extends within 50 m of the southern boundary of the recently dedicated Yeldulknie Conservation Park. This park contains large areas of broadly similar habitat and it seems most likely that *A. praemorsa* will be found there.

The four populations each have about 500-1000 plants and the status code 2RCa is suggested using the criteria of Briggs and Leigh (1989).

Etymology: The epithet refers to the premorse phyllode apex and is derived from the Latin *praemorsus* meaning "as if bitten off".

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